Medical Library

JUNE 10, 1933

JUN 20 1933

THE LANCET

Offices: 7, ADAM STREET, ADELPHI, W.C.2.

Telegrams: LANCET, RAND, LONDON. Telephone: TEMPLE BAR 7228 and 7229.

No. XXIII. OF VOL. I., 1933. LONDON, SATURDAY, JUNE 10, 1933 Pp. 120—Price 1s.
No. 5728. Vol. CCXXIV. Founded 1823. PUBLISHED WEEKLY. Registered as a Newspaper. Annual Subscription: Inland £2 2s. Abroad £2 10s.

PUBLICATIONS OF THE

MIDDLESEX HOSPITAL PRESS.

SOME RADIUM CASES AT THE MIDDLESEX HOSPITAL.
A Photographic Record. By A. CAMERON MACLEOD, M.B., B.S., F.R.C.S. Illustrated. 7s. 6d. net.

GASTRIC ACIDITY. By J. D. ROBERTSON, M.D. An Historical and Experimental Study. With Diagrams. 5s. net.
London: John Murray.

GYNÆCOLOGY FOR NURSES AND GYNÆCOLOGICAL NURSING. By COMYNS BERKELEY, M.D., M.C., F.R.C.P., F.R.C.S., etc. (Consulting Obstetric and Gynæcological Surgeon to the Middlesex Hospital). 6th Edition in preparation.
Faber & Faber, Russell-square, London.

DISEASES OF THE THYROID GLAND.
WITH SPECIAL REFERENCE TO THYROTOXICOSIS.
By CECIL A. JOLL, M.S., B.Sc., F.R.C.S. (Eng.).
Crown 4to. Fully Illustrated. £3 3s. net.
"Mr. Joll has presented his fellow practitioners and students with a monumental volume. They need not trouble to search the literature published up to the time this volume went to press, for they will find everything relevant within its covers."
—BRITISH JOURNAL OF SURGERY.
William Heinemann (Medical Books) Ltd., 99, Great Russell-street, London, W.C.1.

JUST PUBLISHED.

DISEASES OF THE EYE:
PRACTITIONERS' SERIES.
By ANDREW RUGG-GUNN, M.B.(Edin.), F.R.C.S.(Eng.), Surgeon to the Western Ophthalmic Hospital.
F'cap 4to. Illustrated. 12s. 6d. net.
Wm. Heinemann (Medical Books) Ltd., 99, Great Russell-street, London, W.C.1.

THERAPY OF PERSONAL INFLUENCE.
By EDWIN HOPEWELL-ASH, M.D. Price 2s. 6d.
Various psycho-physical methods illustrated by cases.
Obtainable from BM/ELHA, London, W.C.1.

With 16 Plates. Demy 8vo. 9s. net; postage 5d.

PYELOGRAPHY:
ITS HISTORY, TECHNIQUE, USES AND DANGERS.
By ALEX. E. ROCHE, M.A., M.D., M.Ch., F.R.C.S.
With an Introduction by SIR JOHN THOMSON-WALKER, F.R.C.S.
"... will be of great use .... an up-to-date treatise."—B. M. JNL.
London: H. K. Lewis & Co. Ltd., 136 Gower-street, W.C.1.

SELECTED WRITINGS OF
JOHN HUGHLINGS JACKSON,
M.D., F.R.C.P., F.R.S.
Two Volumes.
I.—EPILEPSY AND EPILEPTIFORM CONVULSIONS.
II.—EVOLUTION AND DISSOLUTION OF THE NERVOUS SYSTEM; SPEECH: VARIOUS PAPERS: ADDRESSES AND LECTURES.
Edited by JAMES TAYLOR, M.D., F.R.C.P.
With the advice and assistance of GORDON HOLMES, M.D., F.R.C.P., and F. M. R. WALSHE, M.D., F.R.C.P.
Over 500 pages in each vol. Price 25s. net each; postage extra (inland 9d., abroad 10d.).
Hodder & Stoughton Ltd., Warwick-square, E.C.4.

Now Ready. Price, Cloth 3s. 6d.; Paper 2s. 6d.

ANTE-NATAL ADVICE
A HELP TO GENERAL PRACTITIONERS AND NURSES IN CONDUCTING ANTE-NATAL WORK.
By G. T. BIRDWOOD, M.A., M.D. (Cantab.).
"A wealth of good advice . . . certain to be of great value to doctors and nurses . . . undoubted worth and utility."—GUY'S HOSPITAL GAZETTE.
"Quite in accordance with modern teaching. . . ."
MOTHER AND CHILD.
John Bale, Sons & Danielsson, Ltd.

FRACTURES.
By MEURICE SINCLAIR, C.M.G., M.B., CH.B. (EDIN.).
With an Introduction by Sir ROBERT JONES, Bt., F.R.C.S.
Pp. 550. 337 X-Ray photographs, photographs and diagrams. 24s. net.
Constable & Co., Ltd., London.

BY KENNETH M. WALKER, F.R.C.S., M.A., M.B., B.C.
DISEASES OF THE MALE ORGANS OF GENERATION.
Pp. 246. Coloured Plate and 78 Illustrations. 12s. 6d. net.
THE ENLARGED PROSTATE.
Pp. 212. Coloured Plate and 59 Illustrations. 12s. 6d. net.
MALE DISORDERS OF SEX, 5s. net. (Jonathan Cape.)
Oxford University Press. Amen House, London, E.C.4.

CANCER OF THE RECTUM
ITS PATHOLOGY, SYMPTOMATOLOGY AND TREATMENT.
By W. ERNEST MILES, F.R.C.S., HON. F.A.C.S., Surgeon Emeritus (with beds) to the Cancer Hospital; Surgeon to the Gordon Hospital for Diseases of the Rectum, &c.
80 pp. and 33 plates, bound cloth. 7s. 6d. net, post free 7s. 10d.
"It is the best exposition of the subject with which we are acquainted."—BRITISH JOURNAL OF SURGERY.
Harrison & Sons, Ltd., 44, St. Martin's Lane, London, W.C.2.
"Should be in the possession of every medical man."
—GLASGOW MEDICAL JOURNAL.

URINARY SURGERY
A Handbook for the General Practitioner.
By W. K. IRWIN, M.D., F.R.C.S., Surgeon, St. Paul's Hospital for Genito-Urinary Diseases.
"Clearly written . . . furnishes the practitioner with information of great practical value in his everyday work."—BRIT. MED. JOUR.
SECOND EDITION. REVISED AND ENLARGED.
Price 10s. 6d. (postage 6d.).
Baillière, Tindall & Cox, 7 & 8, Henrietta-street, London, W.C.2.

DISEASES OF THE RECTUM AND COLON
AND THEIR SURGICAL TREATMENT.
BY
J. P. LOCKHART-MUMMERY
F.R.C.S. ENG., M.A., M.B., B.C. CANTAB.,
Senior Surgeon to St. Mark's Hospital.
Over Two Hundred Plates and Illustrations. Price 25s.
Baillière, Tindall & Cox, 8, Henrietta-street, Covent Garden.

JOHN BALE, SONS & DANIELSSON, LTD.

ENURESIS OR BED-WETTING. By R. J. BATTY, M.D., B.Sc., D.P.H. Post free 3s. 9d.
"Its useful advice should be taken by all practitioners who are daily having to deal with this troublesome condition."—BRIT. MED. JNL.

THE CARE AND FEEDING OF ADULTS. By LOGAN CLENDENING. Post free 6s. 6d.
"Written in a light and humorous manner, the book . . . presents the essential facts."—MORNING POST.

SCIENCE & PSEUDO-SCIENCE. The necessity for an Appeal Board for Science.
By F. W. EDRIDGE-GREEN, C.B.E., M.D., F.R.C.S. Post free 2s. 8d.

GETTING QUALIFIED. By DAVID SCOTT. Post free 8s.
"Few people know aught of the very arduous years through which a medical student has to toil before he qualifies to serve the public. Once he is qualified the medico's course is not by any means plain sailing, and the author describes to us all the trials and tribulations of an ordinary family doctor."—ABERDEEN PRESS AND JOURNAL.

POCKET MONOGRAPH ON PRACTICAL MEDICINE.

GENERAL AND CHILD HÆMATOLOGY. By W. M. FELDMAN, M.D., B.S., M.R.C.P. Lond., F.R.C.S. Edin. Post free 2s. 8d.

THE CLINICAL ASPECT OF CHRONIC POISONING BY ALUMINIUM AND ITS ALLOYS. By L. SPIRA, M.D. Post free 2s. 7d.
"Dr. Spira's experiences on this chronic disease should prove invaluable to the medical profession."—EDIN. EVENING NEWS.

THE OUTLOOK OF SCIENCE. Modern Materialism. By R. L. WORRALL, M.B., Ch.M. Post free 9s.

PSYCHOLOGICAL FOUNDATIONS. A contribution to Every-man's Knowledge of Himself.
By THEODORE J. FAITHFULL, M.R.C.V.S. Post free 11s.

THE CURE OF HÆMORRHOIDS, VARICOSE VEINS AND ULCERATION, AND ALLIED CONDITIONS. Modern Methods of Injection and Bandaging. With Illustrations. By STUART MCAUSLAND, B.A. Lond., M.D., Ch.B. Liverp., M.R.C.S. Eng., L.R.C.P. Lond. Post free 3s. 10d.

83-91, GREAT TITCHFIELD ST., LONDON, W.1

Powerful adherence . . .

has made Surgeons all over the world prefer

Leukoplast

"Beiersdorf"

the original zinc oxide rubber adhesive plaster.

Leukoplast is unsurpassed for reliability, durability and adhesive strength even in the tropics.

Free samples on request.
Now made in England by

BEIERSDORF LTD., Welwyn Garden City, Herts.

ADDRESSES AND ORIGINAL ARTICLES

ON COMPLICATIONS OF THE SPECIFIC FEVERS

WITH ESPECIAL REFERENCE TO SCARLET FEVER AND MEASLES *

BY CHARLES R. BOX, M.D., F.R.C.P. LOND., F.R.C.S. ENG.

SENIOR PHYSICIAN TO THE LONDON FEVER HOSPITAL, AND TO THE FREEMASONS' HOSPITAL; CONSULTING PHYSICIAN TO ST. THOMAS'S HOSPITAL

I.—THE VASCULAR LESION

As a text for this lecture I have chosen a complication of scarlet fever, which, although uncommon, has, from its striking character and its gravity, attracted the special attention of those who are particularly interested in the specific fevers. I refer to the condition known as hæmorrhagic purpura, occurring as a sequel to the primary invasion. Some 50 cases, the majority reported in various medical periodicals, a few which have come under my own observation, and one or two unreported, communicated to me by medical friends, form the material on which the following account and discussion are founded.

But before proceeding to describe this purpuric sequel I may mention another type of hæmorrhagic scarlet fever, which is often alluded to but of which accounts are difficult to find. I have not seen it myself. In this type the clinical condition is said to be similar to that seen in purpura variolosa, the lethal purpura of small-pox. The eruption of scarlet fever is, in these cases, actually accompanied by the symptoms of hæmorrhagic purpura, so that together with profuse hæmorrhages from the mucous membranes the rash itself is also extensively hæmorrhagic. One can easily see how closely this type would resemble that form of hæmorrhagic small-pox in which the intense scarlatiniform prodromal rash is hæmorrhagic and accompanied by unstaunchable hæmorrhages from all the mucous membranes, terminating in death, even before the papular eruption has time to make its appearance. This has led many writers to express the belief that most cases of this type of hæmorrhagic scarlet fever were not scarlet fever at all, but in reality examples of hæmorrhagic small-pox.

Clinical Findings

The clinical features of hæmorrhagic purpura when it occurs as a sequel to scarlet fever are as follows.

The usual time of onset is in the third or less commonly in the fourth week. A few cases have been recorded as occurring earlier, and one or two have occurred in weeks subsequent to the fourth—one as late as the fifty-third day of the disease. There are no distinctive premonitory signs by which the supervention of purpura can be foretold. The attack of scarlet fever, judging by the records, appears usually to have been of a mild or but moderately severe type, showing no characters definitely out of the ordinary. The onset of purpura has come as a surprise. In quite a number of instances secondary tonsillitis or cervical adenitis or rhinitis with, it may be, slight febrile disturbance and albuminuria have preceded by a day or two the detection of the cutaneous hæmorrhages or the onset of bleeding from a mucous membrane, most often from the nose. Such secondary complications as I have mentioned are so common in scarlet fever that one hesitates to attach too much importance to them, but nevertheless there may be some connexion.

As a rule the earliest manifestation of the hæmorrhagic tendency is the sudden appearance of bruise-like ecchymoses, usually first on the lower limbs in the region of the sacrum, on the buttocks, over the trochanters or iliac crests, or on the thighs, calves, and about the ankles. Similar bruises may appear about the elbows, on the forearms and arms, and in some instances on the cheeks, nose, eyelids, or ears; in other cases they are found on the front of the abdomen, the flanks, or shoulders. The frequency with which the ecchymoses appear in the neighbourhood of bony prominences and pressure points leads to the inference that slight trauma plays some part in their localisation. Pain, sometimes referred to joints, sometimes to the actual extravasations, may draw attention to their occurrence, but is not always present. Careful scrutiny of the body may reveal the presence of petechial hæmorrhages in other situations, and epistaxis may accompany the hæmorrhages but is not always present. The extravasations may extend and quickly become confluent. Their tint is a dusky purple or raven black, they may occasion great tissue tension which gives rise to burning pain, and sometimes leads to the formation of superficial bullæ filled with sanguineous exudate. In some cases extensive necrosis of the skin and subcutaneous tissue or even gangrene of the extremities has ensued, presumably from compression of the vessels and stoppage of the circulation. Associated with the larger bruises a generalised purpuric eruption, more or less profuse, may appear on the trunk and other parts of the body, and also on the visible mucous membranes; the lesions range in size from minute petechiæ to larger blotches, bright coloured when first they appear, but later becoming dusky purple. On the mucous membranes ulceration may occur. Punctures, which have been made by hypodermic or serum needles, may determine extravasations which continue to ooze, indicating an increase in bleeding-time. As the condition progresses the unaffected parts of the skin show an anæmic waxy pallor in strong contrast to the purple or blackened areas of extravasation. Many observers have remarked that this anæmic appearance may be out of all proportion to the amount of blood actually lost.

Hæmorrhages from mucous membranes may or may not accompany the extravasations into the skin. The most common is the epistaxis already mentioned. This occurred certainly in a third, and possibly in more, of the cases under review. Next in frequency to epistaxis comes hæmaturia and less commonly hæmorrhage from the gums, the stomach, and the bowel. Sometimes there is bleeding from the vagina or, as in one case in this series, from the ears. Rarely blood-stained sputum is expectorated. L. Trewby has described a case complicated by a hæmorrhagic swelling in the left anterior quadrant of the tongue, and many years ago I reported a case of scarlet fever in which, after a single bruise had appeared on the inner side of the left arm, the whole floor of the mouth became infiltrated with extravasated blood which pressed the tongue against the roof of the mouth and finally produced the clinical picture of a severe

* The Lumleian lectures for 1933, delivered before the Royal College of Physicians of London on March 16th, 21st, and 23rd. Lectures II. and III. will appear in forthcoming issues.

Ludwig's angina, the cervical swelling extending far down towards the manubrium. Violent epistaxis supervened, and it looked as though tracheotomy might become necessary. This would have been a most formidable undertaking, but fortunately spontaneous absorption of the blood occurred and the patient recovered, although the mucous membrane of the mouth ulcerated and a patch of pleural friction led to a diagnosis of infection or possible hæmorrhage in the lung. This patient had previously bled profusely after tooth extraction, and there was a history of a tendency to bleeding in his mother's uncles, and male cousins on his mother's side. The bleeding in this case first occurred on the tenth day of the disease, and was preceded by fever, rheumatic pains, and slight albuminuria.

It is interesting to note that on rare occasions the purpura has assumed the Henoch type, and has been accompanied by colic. In one such case, reported by R. Smith and T. A. Bertram, severe epigastric pain and vomiting supervened on the fifth day of a surgical scarlet fever, accompanied by albuminuria and œdema of the hands and feet, and followed four days later by a purpuric rash. Despite morphia the abdominal pain continued and the patient collapsed. Dramatic recovery followed a large blood transfusion. In a second case abdominal pain only appeared after the purpuric manifestations became evident. For the notes of the third case (unpublished) I am indebted to Dr. J. R. Prior of the Hornsey Isolation Hospital.

A lad was admitted on the fourth day of mild scarlet fever. On the sixteenth day sore-throat recurred, and the temperature rose to 103° F. He vomited several times during the next few days and passed a little blood-stained mucus. The abdomen was scaphoid but not rigid, and abdominal pain was complained of. Intussusception was feared. On the twenty-third day of disease purpuric spots appeared on the feet and elbows, and the diagnosis became clear. The intestinal symptoms with occasional vomiting continued for nearly three weeks altogether, and the purpuric spots continued to appear. The right wrist swelled, and hæmaturia supervened on the thirtieth day of disease. A large hæmatoma of the right axilla suppurated. Recovery was complete. The blood in this case showed a polymorphonuclear leucocytosis. The platelet count was 300,000.

Arthritic complications of the purpura are also exceptional. There are very few reported cases in which the occurrence of articular pain and joint swelling, usually solitary, are mentioned.

Evidence of cerebral involvement is rare. Henoch records the occurrence of a violent epileptiform fit during the course of the purpura in one of his patients who recovered. In G. McConnell and H. L. Weaver's fatal case there was a superficial area of hæmorrhagic softening in the left temporal lobe of the brain, and Eugenia Yanuzzi, of Uruguay, reports a case in which deep coma and tonic convulsions supervened before death. Clinically, when a note is made of the mental condition it is described as clear or listless, but in F. E. Bertling's case where purpura developed very early, on the third day of the fever, the patient was delirious, whilst in C. Elliott's case the purpura appeared on the nineteenth day accompanied by delirium and fever. The commonest event appears to be an unclouded mind and temperature subnormal or but slightly febrile. Several observers remark that the condition resembles that seen preceding death from severe hæmorrhage, although they are struck by the fact that the actual loss of blood may not have been great.

ASSOCIATED NEPHRITIS

Where autopsies have been made, sometimes no internal hæmorrhages have been found, but frequently petechiæ or even larger extravasations have been noted in the serous and mucous membranes, including that of the bladder, and in some cases blood-stained pleural or peritoneal exudate has been present. Hæmorrhages have also been observed in the mediastinum, the broad ligaments, and the ovary. Acute glomerular nephritis has been recorded, and in one case recent vegetations were found on the mitral and aortic valves.

The association with nephritis calls for some comment here; it will be considered more fully later on. It is a striking fact that both the nephritis and the purpura are most likely to occur in the third week of scarlet fever. This may be something more than a mere coincidence, and has led to the suggestion that scarlatinal nephritis may be a purpuric manifestation, the kidney being the site of election for the manifestation of scarlatinal purpura, and the other purpuric symptoms being results of the same widespread but usually latent lesion. It is known that scarlatinal nephritis without visible purpura is sometimes accompanied by severe abdominal colic and vomiting with constipation, suggesting intestinal obstruction, and resembling the symptoms of Henoch's purpura. In post-scarlatinal purpura clinical evidence of renal involvement is often but not always present. The typical glomerular nephritis, with degeneration of the epithelium of the convoluted tubules, has been present in some of the patients dying of scarlatinal purpura.

I have found ten records of cases in which albuminuria and casts were present, and four in which frank hæmaturia is mentioned, but unfortunately in many cases the state of the urine has not been recorded. There are other observations which show that purpura may occur when the urine is normal. Conversely, the hæmorrhagic nephritis of scarlet fever usually runs its course without purpuric manifestation.

GANGRENE

The condition of scarlatinal purpura appears to be connected in some way with the occurrence of gangrene which occasionally supervenes during the course of scarlet fever. Local necrosis may occur at the site of a large hæmorrhagic effusion, and when the limbs are the sites of extensive extravasations of blood they may become swollen, cold, and pulseless. Gangrene of toes, fingers, the nose, and the cheeks is recorded, and in a few cases of one or both lower limbs. Bullæ may form on the gangrenous areas, more rarely the gangrene has been described as of the dry variety. A striking case was reported in 1897 by A. E. Pearson and H. Littlewood.

A boy, aged 4 years, developed on the ninth day of scarlet fever of moderate severity, numerous subcutaneous hæmorrhages from the toes to just below the knees. The temperature rose to 101° F., and the limbs became hard and painful; both legs and the lower part of the thighs became discoloured. Lines of demarcation formed. Successful amputations were performed through the thighs. The legs were dry and mummified. Reddish-white soft clots, not filling the whole lumen of the vessels, were found in both popliteal arteries, but the vessel walls appeared healthy.

Another case is recorded by J. B. Buchan in which the scarlet fever was evidently a severe toxic attack with circulatory failure. On the seventh day of the disease epistaxis and hæmaturia supervened. The sputum became blood-stained, and a spreading discoloration appeared on the right calf. The leg became cold and gangrenous. A line of demarcation formed above the knee; amputation was followed by recovery. There is no description of the condition of the main vessels.

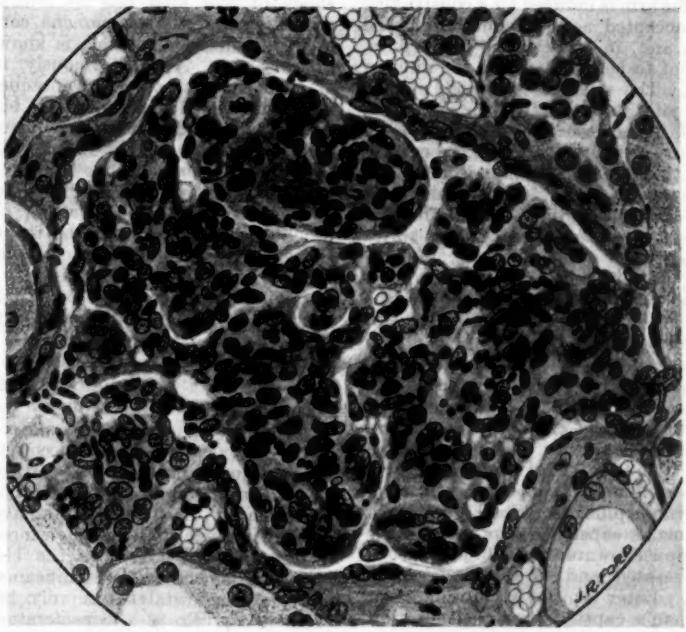
Two other cases have been reported by D. Sage Sutherland from Monsall Hospital.

A boy of 4 years, after a secondary tonsillitis and cervical adenitis, developed acute nephritis on the twenty-first day

of scarlet fever, and later otitis media with mastoid tenderness. On the thirty-sixth day of illness purpuric areas appeared on the buttocks, extending to the loins, and others on the right upper arm and forearm, ultimately implicating the limb from the shoulder downwards. Later the left leg became painful and swollen, and the left arm suffered in a similar way to the right. Blisters appeared on the purpuric areas and hæmaturia recurred. Death took place on the forty-second day of illness and the sixth day of purpura. There was no autopsy.

Another, a Hebrew lad, 4½ years old, on the eighteenth day of scarlet fever developed a discoloration of the left leg below the knee and dorsum of the left foot. Embolic gangrene was suspected, since arterial pulsation could be detected even in the femoral artery. A Gram-positive non-hæmolytic streptococcus was recovered from the blood. Amputation was performed later through the thigh. There was no evidence of either embolism or thrombosis in the amputated limb.

I have quoted these cases because they bring out two points—namely, the association of massive gangrene with the purpuric state, and the uncertainty as to the actual cause of the tissue death. Gangrene of the extremities in scarlet fever has usually been attributed to embolism, and no doubt this might occur when a streptococcal endocarditis complicates the disease, just as hemiplegia has been reported in scarlet fever from the same cause. In other cases an association with congenital syphilis has been suspected. But it seems that in cases of the type we are now considering that another mechanism is at work. Where microscopical examination has been made of the tissues in such cases they have been found to be packed with red blood corpuscles and polymorphonuclear cells, and the small blood-vessels have been compressed. It is impossible to resist the conclusion that abolition of the circulation by the presence of the interstitial hæmorrhages is the final cause of the gangrene, when it occurs either as a local or a more massive and extensive manifestation. The association with the gangrene of a purpuric state seems to be too frequent for the connexion to be fortuitous, and failure to find gross changes in the large vessels strengthens this view. In most cases the gangrene has been noted as a distinct sequel to the purpura, but in some cases the observer's attention has been focused on the gangrene and the other hæmorrhages are only mentioned incidentally.



Scarlatinal nephritis. Great proliferation of glomerular endothelium, ischæmia of the capillary tufts, and a mitotic figure in the tuft to the left. (× 450.)

THE HÆMORRHAGIC DIATHESIS

The influence of a pre-existing hæmorrhagic diathesis in causing purpura needs consideration. My attention was first drawn to this possibility by the case which I have already mentioned in which extensive hæmorrhage occurred into the floor of the mouth. From the family history a hæmophilic tendency was suspected. But many inquiries in the children's outpatient department at St. Thomas's Hospital brought to light no cases where the children of hæmophilic families showed any tendency to hæmorrhagic complications during the course of the common infectious fevers. The possibility of this has evidently been in the mind of other observers, and not a few have been at pains to ascertain the presence of hæmorrhagic or purpuric disease in the families of the patients with infective purpura who have come under their care.

The simultaneous occurrence of two cases of hæmorrhagic scarlatinal purpura in children of the same family reported by Dr. F. G. Hobson and Dr. A. G. Gibson evidently led to the same speculation, but these observers have since put it on record that not only was there no history of hæmorrhagic or purpuric disease in the family in question or in their immediate ancestors, but that investigation of the reports of 18 other cases showed that in 7 the family history was explicitly stated to be negative in this respect, and in the remaining cases no mention of such a tendency was made. Thus it appears that any influence of an hereditary or family tendency in precipitating this complication may be excluded. Henoch throws a light on this question from a different angle. He says that an attack of purpura shortly before scarlet fever does not give rise to any special tendency to hæmorrhagic complications, and quotes a case of his own in support of his statement. Recently a patient of mine with the hæmorrhagic diathesis has passed through an attack of scarlet fever unscathed.

In one of the cases in my list, communicated to me by Dr. J. R. Prior, the patient had already been in hospital with scarlet fever six months previously; she made an uneventful recovery, but contracted the fever again in the autumn, but this time extensive cutaneous extravasations of blood and hæmaturia occurred. Again she recovered.

It appears then that we may conclude that there is no justification for the idea that the supervention of the hæmorrhagic condition in scarlet fever, or indeed in the other specific fevers, can be attributed to the activation of a pre-existing but

latent hæmorrhagic tendency. Rather must we look for some pathological lesion, engendered by the acute infection, but evidently, from its rarity, dependent on some special circumstances for its manifestation.

Pathology of the Hæmorrhagic State

The two factors which are commonly believed to play their parts in the genesis of the purpuric state are capillary toxicosis and deficiency of blood-platelets. That the toxin of scarlet fever is capable of inflicting damage on the capillaries is demonstrated by ample evidence both clinical and experimental. The Rumpel-Leede phenomenon, which consists in the production of small petechial hæmorrhages like red pepper grains at the bend of the elbow, when congestion of the arm is induced by a constricting band, is generally accepted as a sign of diminished capillary resistance, and, in other forms of purpura, is definitely stated not to be correlated to the number of platelets present. The small hæmorrhagic streaks often present in the joint flexures after the scarlatinal rash has faded afford evidence of the same kind. By studying microscopically the capillaries in the erythematous area during the rash, K. Birkhaugh found the number of visible capillary loops to be quadrupled, infiltration with antitoxin gradually diminished the number of loops to normal. E. Frank states that Nickau proved capillary damage by microscopical examination during life, finding that the capillary net of the skin was still strongly filled up to the fortieth day of scarlet fever and the venous arm of the capillaries especially dilated.

The histological changes in the kidneys of early scarlatinal nephritis afford strong confirmatory evidence of this vascular damage. The microscope shows clear evidence that the earliest change is in the endothelium of the vessels which constitute the glomerular tufts. The endothelial swelling is active and may show mitoses, it tends to obstruct and even block the lumina of the capillaries. (See Figure.) An exudation into Bowman's capsule occurs which may even force the tufts down towards the hilum. Blood-cells may be extravasated and in some cases true hæmorrhage occurs. Later epithelial proliferation may occur in Bowman's capsules and degeneration of the proximal convoluted tubules may be evident. The whole picture is strikingly similar to, or even identical with, that of trench nephritis with which we were familiar during the late war.

I have already said that it is possible to look upon the hæmorrhagic nephritis of scarlet fever as a special local manifestation of a capillary lesion which is really much more widespread, and which owes its renal localisation, perhaps, to the special circumstances under which the kidney does its work; in other instances, for which at present there is no explanation, it manifests itself as a hæmorrhagic purpura. The fact that cutaneous œdema may show itself before any of the signs of renal disease have become apparent, may also be cited in support of this hypothesis.

It is only fair to state that some authorities entertain a different view of the origin of glomerular nephritis. Seeing that in the acute stage the glomerular capillaries are empty of blood, they attribute this not to an obstruction due to general swelling of the endothelium, but to an active constriction of the vasa afferentia; in proof of this contention they claim that the glomerular capillaries are easily injected after death. It is also stated that the blood pressure rises in glomerulo-nephritis before the appearance of albumin in the urine. They further point to the well-known influence of cold in precipitating nephritis, and state that certain observers have shown that cooling of the skin induces reflex vasoconstriction in the kidney.

These arguments are mostly indirect. It is difficult to see why mere vasoconstriction should induce endothelial proliferation and evident mitoses; irritation by a toxin seems to offer a more likely explanation. So far as the alleged premonitory rise in blood pressure is concerned, I have notes of cases in which this certainly did not occur.

The mode of death in severely toxic scarlet fever in many ways resembles the condition of severe secondary shock. Cyanosis or pallor, cold extremities, small running pulse, shallow respiration, and restlessness with failure to react to potent vascular stimulants are striking features. According to modern teaching shock of this kind has its foundation in capillary dilatation and the phenomena correspond to those of histamine shock, which is known to be produced in this way. The enormously increased capacity of the vascular bed and consequent vascular stasis with diminished return of the blood to the heart, account for the clinical phenomena in the cases of secondary shock, and it seems reasonable to suspect some mechanism of this kind in shock from overwhelming toxæmia. Whether a loss of fluid, from the blood-vessels and resulting oligæmia occurs—which has been shown to be the case in diphtheria—has not, so far as I know, been established for scarlet fever. It is tempting to regard the skin reaction produced by the scarlatinal toxin in the Dick test as comparable to the reaction produced by other noxious substances, which liberate the H. substance, but some authorities deny this.

THE BLOOD PICTURE

The proof, then, of capillary damage appears to be very strong, and it remains to inquire whether there is any clear evidence of accompanying exhaustion of, or injury to, the bone-marrow. Blood counts should throw a light on this question. In many cases, unfortunately, no blood counts have been made, and even when made they are often incomplete, especially as regards enumeration of the blood-platelets; no doubt this is because the significance of thrombopenia in hæmorrhagic states has only been recognised in recent years. From a consideration of 12 cases in which blood counts are available (see Table) the following facts emerge.

(1) A considerable *leucocytosis* is the rule, falling as the case approaches a fatal termination. Exceptions to this are very few. The leucocytosis is of the polymorphonuclear type, and these cells may form as much as 80 per cent. or more of the total in extreme instances. The proper leucocytosis of scarlet fever is at its height at, or soon after, the onset (i.e., in the first week), and is most severe and persistent in severe cases. At the usual time for the onset of purpura the blood count should be normal, or nearly so.

(2) The evidence as to the number of *platelets* is very conflicting, actual counts having been made in very few instances. Observers make such statements as "not increased" (three cases) or "large numbers" (one case); while Risel notes that in his case the blood-platelets were fairly uniformly large, solitarily situated instead of in clumps, and not apparently increased. In one of my own cases, a very severe one which recovered, no platelets were seen in counting 4000 red cells. In a second case they were reduced to 93,000; this case proved fatal, although clinically not severe. In a third case, for which I am indebted to Dr. J. R. Prior, and which has been mentioned already as being of the Henoch type, the blood changes were insignificant beyond a marked excess of polymorphonuclear cells, and the platelets numbered 300,000. In a second case of Dr. Prior's in which Dr. Joseph Bamforth made a count at my request, there were 146,000 platelets, some of which were very large; here again recovery ensued. A mild relapsing purpuric case in the London Fever Hospital, reported by Dr. F. G. Wood-Smith, showed 163,000 platelets, the number rising to 378,000 three months later. In another case reported by Dr. J. Prendergast, of the London County Council, no platelets were seen in

stained films or wet citrate preparations, but they were present in normal numbers a month later.

Thus it is evident that up to a certain point the bone-marrow is stimulated to produce polymorphonuclear leucocytes, but beyond this point it begins to fail rapidly, for in one case the polymorphonuclear cells fell progressively from 80,400 to 17,800 in a week, and to 8600 in a fortnight. It might be urged that the platelet deficiency is merely due to loss of blood or alternately that the platelets are being rapidly used up to buttress the leaking capillaries; at all events, it is evident that the platelets may be diminished out of all proportion to the red cells. In cases of true thrombocytopenic purpura (Werlhof's disease) it has been stated that when the platelets exceed 30,000 or 35,000 per cubic millimetre the tendency to hæmorrhage completely disappears, but it is also stated that a marked reduction of the platelet count *may* occur without any increase of the bleeding time or the appearance of spontaneous hæmorrhages. In this disease there is no coexistent capillary toxicosis, so it seems legitimate to suggest that when toxicosis does exist a smaller diminution in platelets might be an effective factor in aiding the hæmorrhagic tendency.

The purpura is evidently of the symptomatic infectious type. The circumstances under which it supervenes and the accompanying polymorphonuclear leucocytosis are evidence of this. That capillary damage is present seems unquestionable for the reasons already adduced, also that a marrow exhaustion either simple in character or due to a toxæmia supervenes. It is of interest to compare the condition with hæmorrhagic variola; of this condition I have no personal experience, but borrow the following quotation from E. Frank, who bases it on Arndt's description.

> In severe infections of small-pox, especially in the hæmorrhagic forms, the blood picture betrays a very severe injury of the leucoblastic apparatus. The neutrophils recede quite into the background, lymphocytes and plasma cells predominate, and myelocytes and normoblasts are strikingly numerous, as indices of a peculiar myelotoxicosis.

Frank goes on to say that—

> there is also in this disease, as I have convinced myself in the blood preparation of several of Arndt's cases, an extreme thrombopenia. This is also deducible from the clinical findings of the same author that at the sites of subcutaneous injections hæmatomata soon developed up to the size of a fist, and that the smallest pin pricks bled for hours.

It is of interest to note that both T. McCririck and Gibson and Hobson note the occurrence in scarlatinal purpura of rings of hyperæmia with central areas of normal skin. McCririck says "the larger purpuric areas developed as rings with central areas of normal skin which gradually became encroached upon." In Gibson's and Hobson's account we read that—

> scattered over the posterior surfaces of the arms and outer sides of the thighs were white areas of skin varying in size from a threepenny piece to a shilling, each surrounded by an area of hyperæmia some few millimetres wide, but these latter faded and did not become purpuric.

This description calls to mind the condition known as marbled skin, a retiform pattern induced in many individuals by exposure to cold. The meshes of the network are especially large on the extensor surfaces of the limbs. Some peculiarity of the anatomical arrangement of the vascular supply is the basis of the phenomenon, and H. Haxthausen states that under the influence of cold the arterioles in the strands of the network are more strongly contracted than those in the meshes thus producing a retiform cyanosis.

TABLE SHOWING THE BLOOD COUNTS IN SCARLATINAL PURPURA

—	Day of disease.	Red cells (millions).	Hæmoglobin.	Colour-index.	Platelets.	White cells.	Polymorphs.	Lymphocytes.	Monocytes.	Myelocytes.	Eosinophils.	Basophils.	Nucleated red cells.	Remarks.
			%				%	%	%	%	%	%		
Biernacki and Dykes	8th week.	3,600	—	—	—	50,000	85	10	0	0	2		—	—
Elliott ..	19th day.	2,270	—	—	Not increased.	65,400	79	13	16	5·2	5	—	3	—
Risel ..	16th ,,	5,180	—	—	,, ,,	38,120	83·3	10·4	—	2·1	0	2·1	—	—
Rolleston and McCririck	10th ,,	1,780	—	—	,, ,,	57,600	63·4	—	—	6·3	—	—	Many microcytes.	—
McCririck ..	18th ,,	3,670	—	—	,, ,,	15,700	86	—	—	2·5	—	—	Many microcytes.	—
Prior ..	22nd ,,	5,620	—	—	300,000	4,000	83	15	1·5	—	0·6	—	—	Coag. time 4 m.
Gibson and Hobson ..	16th ,,	4,890	—	—	Large numbers.	27,250	71	21	8	—	—	—	--	—
Wood-Smith	16th ,,	5,400	80	0·7	163,000	6,400	61	30	8	—	—	1	—	Platelets 378,000 3 months later.
Box and Massingham	13th ,,	3,350	65	1	0 in 4000 red cells.	39,800	81·5	14	2	2·5	—	—	—	—
Prior ..	23rd ,,	4,520	64	0·71	146,000, some very large.	21,920	77	L. 4 S. 11·5	4	—	3	—	—	Transitionals 0·5 %.
Prendergast .	40th ,,	4,520	55	—	None seen.	20,400	50*	32	—	—	2	—	—	Transitionals 4 %.
Box	5th week.	2,860	40	—	93,000	22,080	66	26	6	—	2	—	Few.	Polychromasia.

* 66 % the day before.

EXCITING CAUSE AND DELAYED MANIFESTATIONS

What is the direct exciting cause of the purpura? Theoretically it might be due to a streptococcal pyæmia, to a simple streptococcal toxæmia, or to an independent secondary infection. So far as my knowledge goes no one has succeeded in growing a hæmolytic streptococcus from the blood of a patient with scarlatinal purpura during life, although streptococci and endocardial vegetations have been found after death in isolated cases. It is possible that not many attempts at blood culture have been made; in one case which came under my own observation the blood culture remained sterile. We know from the experiments of R. J. V. Pulvertaft that in rabbits the concentrated Dick-toxin can produce leucocytosis, hæmorrhagic nephritis, hæmorrhagic erosion of the stomach, and hæmorrhagic lesions in the mammæ, lungs, and peritoneum. So it is

tempting to assume that the exciting cause of the purpura is the scarlatinal toxin acting on the capillaries and small vessels, reinforced, it may be, by a similar toxic action on the bone-marrow, and having a special predilection for the megakaryocyte cells from which platelets are formed. Whether this toxin is an exotoxin as usually held, or an endotoxin, as suggested by the experiments of C. W. Duval and R. J. Hibbard, is yet to be proved. There is no evidence at present of a secondary infection in these cases.

There still remains the question why the renal and purpuric manifestations are commonly delayed until the third week of the illness. In the case of the kidney it has been suggested that nephritis is produced when a hypersensitive state develops during the process of natural immunisation following the scarlatinal infection; the decisive agent is a toxic one, produced by the reaction of antibody and antigen, or an endotoxin produced by a rapid lysis of surviving cocci. This last supposition receives some support from the experiments of Duval and Hibbard of New Orleans, who succeeded in producing, in rabbits, renal lesions similar to those which occur in scarlatinal nephritis of man. The toxic substance which they used was a streptococcal lysate, produced by injecting scarlatinal streptococci (Dick culture) into the peritoneal cavities of immunised rabbits. The bacteria dissolved, and the lysate is, in their opinion, an *endotoxin* derived from the dissolved bodies. These observers stated that although they were highly susceptible to the lysate, ordinary cultures and culture filtrates had no appreciable effect on normal rabbits. Pulvertaft, however, by use of a special method of concentrating the Dochez *exotoxin* was successful in killing, and in producing renal lesions, in non-immune rabbits. It is not clear that his toxin was free from bacteria, but at all events it is neutralised by antitoxin.

What applies to the kidney might also apply to the purpuric lesions, but at present the matter remains unsettled. Another difficulty is the fact that scarlatinal nephritis can, and in fact often does, occur in Dick-negative patients. This presumably indicates either the presence of antitoxin or the abolition of the hypersensitive state according to the view we take of the cause of the Dick reaction, and militates equally against the view that the condition is purely exotoxic or that it is due to a hypersensitive state.

Prognosis and Treatment

Although the onset of hæmorrhagic purpura during the course of scarlet fever is ominous, the complication is not always fatal. Indeed, Henoch said he had often met with it as a sequel but never with a fatal termination; later, however, he recorded a fatal case. Other authors have described cases which proved rapidly fatal, but we must bear in mind that this type of case is the most likely to be published and slighter cases to go unreported. Of 45 reported cases of which sufficient details are available, 29 proved fatal and 16 recovered. The fatal cases usually survived but two or three days, a few died within the first 24 hours; in those which recover improvement usually is rapid but a few run a relapsing course. Ulcerations left at the sites of hæmorrhage have mostly healed without undue delay. I have looked with interest to see if chronic nephritis was a sequel but have found no mention of it as definitely following purpura in scarlet fever, although it is well known that it occasionally follows purpura occurring under other circumstances.

Speaking of the prognosis in hæmorrhagic small-pox Ricketts says: "It is a general rule that bleeding from internal structures or surfaces is more serious than external extravasation." But I find that in the fatal scarlatinal cases purpura limited to the external surface of the body was as often fatal as cutaneous purpura accompanied by hæmorrhages from the mucous membrane, while, of the survivors, patients who exhibited combined internal and external hæmorrhages actually exceeded in numbers those with external hæmorrhage alone.

It would be interesting to know whether purpura can supervene in patients adequately treated in the early stages with scarlatinal antitoxin. I suspect the sequence is possible, because I have seen hæmorrhagic nephritis occur under these conditions. Treatments adopted in the early reported cases appear to have been the administration of such hæmostatics as turpentine, ergot, and lime-salts. Later adrenaline is mentioned, and later still Collosol calcium and Hæmoplastin. I have mentioned Smith and Bertram's report of a dramatic recovery in the case of an adult male who contracted surgical scarlet fever and presented symptoms suggestive of intestinal obstruction; he then developed purpura and bloody urine. A large blood transfusion effected a speedy cure and the urine was clear in 24 hours. A patient of my own recovered quickly after the administration of liver extract in quantity equivalent to 1 lb. of whole liver per day. J. Prendergast also reports a case of recovery in a 2-year-old child to whom liver was given in the same quantity and taken with avidity. Although the case was not definitely scarlatinal, Pulvertaft records a case in which hæmorrhagic purpura supervened in a boy whose thumb was infected with a hæmolytic streptococcus. Recovery followed the administration of antiscarlatinal serum intravenously and intramuscularly in large volumes.

In dealing with a disease in which recovery appears to have ensued in at least one case out of every three, even when the condition has been most alarming and no special treatment has been adopted, it is difficult to assess the efficacy of the methods mentioned above or to determine their relative values until much more evidence is forthcoming. My own predilection would be for a trial of blood transfusion, preferably from a donor who is immune to scarlet fever owing to a recent attack, thus following the methods advocated by J. E. Gordon, of Detroit, in the treatment of grave septic scarlet fever. If possible, convalescence in the donor should be recent, not exceeding three or four months. The blood should be unaltered, not citrated, and possibly transfusion may have to be repeated.

Some preparation of liver may be used as an adjuvant to stimulate the marrow and accelerate platelet production. I have already stated it may appear to be efficient without transfusion. It was owing to special difficulties of time and place the liver was tried first in the case of recovery which I reported with Dr. Massingham. In one of the cases reported by Dr. Gibson and Dr. Hobson liquid liver extract was given by the mouth. Blood transfusion was deemed impossible owing to abnormal agglutination and iso-agglutination. Scarlatinal antitoxin was also administered but in very small amount. The patient succumbed in three days. If antitoxin is administered it should evidently be given with a free hand, both intramuscularly and intravenously, with of course the usual proportions against anaphylaxis.

Summary

It has been my endeavour in this lecture to show that the toxin of scarlet fever produces a definite

lesion of the blood capillaries, a lesion which happily in most cases proves transient and capable of repair. Glomerular nephritis is a specially localised manifestation of this lesion which also in most instances subsides in a few weeks. More rarely purpura makes its appearance and this, although of very bad prognosis, is in certain cases capable of complete recovery without sequelæ.

REFERENCES

Biernacki, J., and Dykes, A. L.: Brit. Med. Jour., 1913, ii., 903.
Box, C. R.: THE LANCET, 1901, ii., 791.
Box, C. R., and Massingham, R.: THE LANCET, 1931, i., 295.
Buchan, J. B.: Ibid., 1901, ii., 915.
Elliott, C.: Arch. Int. Med., 1909, iii., 193.
Henoch, E.: Lectures on Children's Diseases, London, New Sydenham Society, 1889.
Hobson, F. G., and Gibson, A. G.: THE LANCET, 1932, i., 509.
McCririck, T.: Brit. Jour. Child. Dis., 1912, ix., 154.
MacKay, W.: Quart. Jour. Med., 1931, xxiv., 285.
Pearson, A. E., and Littlewood, H.: THE LANCET, 1897, ii., 84.
Prendergast, J.: Annual Report, London County Council, 1930, vol. iv. (Part III.).
Rolleston, J. D., and McCririck, T.: Brit. Jour. Child. Dis., 1910, vii., 58.
Sutherland, D. S.: Ibid., 1930, xxvii., 102.
Wood-Smith, F. G.: Ibid., 1931, xxviii., 273.

SOME OBSERVATIONS ON PRE-OPERATIVE PROCEDURE*

BY E. R. FLINT, F.R.C.S. ENG.

SURGEON WITH CHARGE OF OUT-PATIENTS AT THE GENERAL INFIRMARY AT LEEDS

II.—TREATMENT

THE principal methods employed to make the patient safe for surgery are rest, water and salt administration, glucose, diet, blood transfusion, and others which may be considered together under the heading of "various." Many of the post-operative complications, too, will be prevented by a well-applied pre-operative procedure.

Rest

Rest in bed for 36 hours should be regarded as the minimum before all abdominal surgery, even in the "good risk" patients; for those not in this class much longer will be required. The stimuli to the kinetic system are thereby reduced, energy requirements are lessened, and the organs of elimination have less to do. Mental rest is perhaps as important as physical; Crile has frequently stressed the shattering effects of strong mental stimulation and, as the operation approaches, apprehension and fear may do much harm, which may not be lessened by stern repression of these emotions. There is no doubt that a confident interest shown by all in attendance has a far-reaching psychological effect. If sound sleep be prevented by anxiety or pain it should be induced by hypnotics for the former, and morphia or one of its substitutes for the latter; especially should it be assured on the night preceding operation. It is not only a great comfort to the patient, but a matter of real therapeutic value, to induce sleep a little while before removal to the theatre, in order that there may be no consciousness of this part of the proceedings.

The difficulty is to find a drug which can be relied upon to produce the right depth of unconsciousness. Morphia alone is not dependable. Avertin (0·08 to 0·1 g. per kg. of body-weight) is fairly reliable, but it must be freshly prepared and so may not be at hand when wanted. Sometimes patients become rather wild under its influence, and it causes some fall in blood pressure. I used to use it a good deal until I began to employ spinal anæsthesia, which also causes a fall of blood pressure, and then I became rather apprehensive of giving two drugs with this same effect. I then tried intravenous Pernocton (1 c.cm. per 27½ lb. of body-weight); there were no ill-effects and deep sleep usually ensued. A few cases, however, became very obstreperous, and the dose seemed to be rather difficult to regulate. At the present time I am using nembutal, two capsules (grs. 1½ each) the night before operation. This seems invariably to induce sound sleep. It is followed by two similar capsules two hours before operation, and another one hour before. Usually sleepiness is sufficient to render the patient indifferent to the prick of the spinal needle; there is never any rowdiness and the method seems to be quite safe.

Water and Salt

Water is the principal constituent of the body, of which it composes 80 per cent. It is the medium by which nutriment is carried to, and waste products from, the tissues; it also has a profound influence on regulation of the body temperature. In order that the fundamental functions of interchange between the cells and their surrounding medium may be properly discharged, the total electrolytic concentration, and the relative proportions thereof, must be maintained at an optimum constant. So zealously is this constant guarded that we may assume it to be a factor of immense importance, and it is largely carried out by water, which in virtue of its fluidity can spread out the effects of concentration of any solute by rapid diffusion into the great area of tissue spaces; and conversely, loss of fluid from the blood-vessels can be very rapidly restored, up to a point, by fluid leaving these spaces, especially from the muscular tissue. Persistent dehydrating influences seriously upset this mechanism, and these influences are often at work in conditions of disease. Water therapy is, therefore, of the highest importance.

Normally, the gratification of natural sensations is sufficient to keep matters in due balance, but circumstances not infrequently arise which make it necessary to give fluid by other than the physiological channel and, since both deficient and excessive water administration may have harmful effects, we must have a working knowledge of what constitutes a reasonable water balance. In the absence of vomiting, diarrhœa or other abnormal discharge, and of kidney disease, it is found that such a balance may be maintained by about 3 litres of fluid in 24 hours, provided it reaches the circulation. We have to estimate the fluid lost by vomiting, &c., as nearly as possible and increase the fluid intake accordingly; also a more generous allowance should be made in cases of kidney lesions, since these organs then require more water to enable them to get rid of the proper amount of waste products.

With a patient lying quietly in bed, not too heavily clothed, and in a room of moderate temperature, the urinary output in 24 hours, plus half a litre or so allowed for insensible loss, gives a practical guide to the total water loss. Visible sweating may increase this very greatly, and the amount is difficult to assess; it is partly compensated by restricted urinary excretion, but therapeutically we should regard it as an indication to increase water intake.

Since our cells are essentially marine structures we have to give sodium chloride with the water. Chlorides play a very important part in the distribution of water in the blood, tissue spaces, and cells, and in the maintenance of the electrolyte concentration within normal limits, as it has been shown that

* Hunterian lecture delivered before the Royal College of Surgeons of England on Feb. 24th, 1933. Part I. on Principles appeared in THE LANCET last week.

most of the factors which alter blood bicarbonate tend to produce compensatory changes in the chloride level. Again, sodium chloride, by its influence on the kidneys, regulates the fluid content of the body, so that if the body loses salt it also loses water, and water drunk by the dehydrated subject will not be retained by the kidney unless salt is taken with it.

As we give water in the form of normal saline, it should be remembered that the normal intake of sodium chloride is from 10 to 20 g. a day. Large infusions such as 4000 c.cm. would, therefore, mean that about twice as much salt as normal was being administered. Consequently, if no water can be given by mouth, half of such large quantities should be given as normal saline and the rest as plain water by rectum. In upper intestinal obstruction with excessive chloride loss it is reasonable to give larger quantities of salt into the blood stream. In emergencies a large quantity of fluid quickly is desirable; but in all other circumstances it should be given slowly and in known amount.

These considerations are best fulfilled by the continuous intravenous method, whereby it is easy to keep up a flow for three or four days at any required rate; 40 drops to the minute means six pints in 24 hours, which is just short of 3½ litres. Once the intravenous drip is in operation it is completely under control, for it is independent of the coöperation of the patient and independent of the irritability of the stomach or rectum; it is not painful, as the subcutaneous method is apt to be. Moreover, at this rate the fluid is not promptly excreted as it is when given rapidly, nor are reactions of protein shock nature often seen when the water has been efficiently sterilised and filtered. Another great advantage of the intravenous method over the other non-physiological channels is the certainty with which substances like glucose can be introduced to the system. It seems doubtful whether glucose is absorbed by the colon to any extent, and it certainly tends to cause distension owing to the action of gas-forming organisms on it; when the colon is distended not only is the patient made uncomfortable, but the colonic veins are interfered with and so do not carry away the fluid introduced into the rectum with any degree of certainty. With subcutaneous infusions the fluid and glucose may for some time be merely retained in the tissues at the site of injection.

Glucose and Insulin

Glucose has become increasingly popular as a therapeutic agent both before and after operation and for good reasons. It is absorbed as such, and therefore puts no strain on the digestive organs; it is completely metabolised to carbon dioxide and water in the presence of insulin, and so does not tax the excretory organs; it is essential to life, and can be given by non-physiological channels; it is readily stored as glycogen in the liver for use as required, and appears to have a protective action against hepatic irritants, and also to some extent it seems to have a similar action in respect of the cardiac muscle; it is a fat- and protein-saver, and in this way prevents the ketosis of incomplete fat combustion; it promotes diuresis, and it increases the coagulability of the blood in jaundice.

How long the life of a patient can be maintained on glucose alone I do not know; proteins are essential for the building up of protoplasm, and even with the patient at rest there is some breaking down of this compound which glucose cannot replace. Consequently any lengthy preparation for operation means that some protein food must be given: 0·5 to 0·7 g. per kg. of body-weight is the minimum of protein intake for subsistence; if less be taken, tissue protein is called upon. It has to be given by mouth, and so also should the glucose be given when possible, since more can be utilised in a given time when administered in this natural way than by other channels. However, as an accessory to and, to a limited extent, as a substitute for food by the mouth intravenous glucose (chemically pure) is an important substance. Since sugar can be obtained from protein in case of need, a normal blood-sugar level must not be taken as an indication that an ill-nourished patient is getting enough exogenous sugar; it would be necessary to estimate at the same time the blood and urine non-protein nitrogen.

The strength of intravenous glucose infusion depends on what effect is desired. In strong solutions glucose has a powerful diuretic action and in a dehydrated patient may cause an alarming exacerbation of the troubles already present. It has a similar, though less pronounced effect in 10 per cent. solution when given rapidly; when used for nutritive purposes about an hour should be allowed for the administration of 1000 c.cm. of such a solution. For ordinary pre-operative use, when sugar must be given by the veins, the continuous drip method of 5 per cent. to 10 per cent. is the best; the more the patient needs sugar the nearer should the 10 per cent. figure be approached. The minimum daily intake of carbohydrate which can be allowed with safety is 240 g. of glucose and at the rate of 60 drops per minute of 5 per cent. glucose the patient would receive about 250 g. This strength is isotonic with the plasma, but does not allow anything for deposition in the liver as glycogen; hence we should increase the strength when we desire to produce this effect. In certain circumstances, such as emergencies, considerably more should be given, and apparently this can be done without sugar spilling over into the urine, since Woodyatt, Sansum, and Wilder [7] have shown that a normal man can utilise 1260 c.cm. per hour of 5 per cent. glucose given intravenously; this is about 1000 g. of sugar in 24 hours.

Pre-operatively in non-diabetic cases of the chronic type I do not think it is necessary to use insulin with glucose infusion, except perhaps when 10 per cent. solution is being used. It is probably safer to assume that the pancreas can manufacture enough to oxidise all the glucose given. It should be kept in mind that insulin seems to produce a dangerously low level of blood-sugar much more readily in non-diabetics, and especially in dehydrated cases, since one of its effects is to induce blood concentration, presumably by increasing the affinity of the tissues for water. If it should be used, repeated blood examinations are essential to watch its effects.

In cases requiring emergency operations the circumstances are different. Generally speaking, the more acute the condition the greater the risk of acidosis and, as pre-operative time is limited and sugar may be strongly indicated, we have to push the treatment rather hurriedly. In this kind of case a considerable amount of glucose must be given in a comparatively short time, and insulin injections enhance the speed with which it is used: 1000 c.cm. of 10 per cent. glucose should be given intravenously very slowly, about an hour being allowed and 10 to 15 units of insulin being injected hypodermically ten minutes after the infusion is started, followed by another dose of the same number of units at the end. As 10 per cent. glucose is a diuretic water or

saline should be given by the rectum at the same time to offset the loss of water. When time permits, this technique may be repeated with advantage.

In the preparation of diabetics the indications for insulin are clear. The danger to these patients is ketosis. They have too much sugar in the blood, but it cannot be used. It may require several days of careful feeding and insulin injections to bring the blood-sugar to a nearly normal level. There is even greater need to avoid pre-operative starvation. Fluid should be given practically up to the last, and 2 oz. of concentrated glucose should be administered an hour or two before operation with 15 to 20 units of insulin. As far as possible the operation should be performed under local or spinal anæsthesia, since ether is a fat solvent. For several hours after operation the same principles should obtain and progress be checked by blood examinations for sugar, and carbon dioxide combining power. Larger doses of insulin will be needed when infection is present, since this reduces its efficiency. If the patient cannot take sugar by mouth the intravenous method outlined above must be used. The outlook for properly prepared diabetics is good, but in attempting prognosis one must remember that vascular changes are one of the effects of diabetes, and such lesions may have a material influence on the post-operative behaviour of the patient.

Blood Transfusion

Few patients of the kind we are considering do not show some degree of anæmia, and for such there is no doubt that blood transfusion fulfils the requirements most ideally. Its effects in my experience are most beneficial when given before operation. Blood adds bulk to the circulation, and remains in the vessels owing to its colloidal nature; the transfused corpuscles have been shown to live and presumably function for at least a month; and it supplies oxygen and carbon dioxide carriers. It therefore attacks the problem of acid-base imbalance at its source. Since the red cell count frequently improves for a few days following the transfusion, it has been said that the bone-marrow is specifically stimulated; this may, however, be due to general improvement merely, and if the red cells are not up to 4,000,000 soon after transfusion it is better to repeat it than to wait and expect the count to improve without further help. It should be the aim to have a count of 4,500,000 red cells before operating whenever circumstances allow.

I invariably use the citrate method; it is simple, and though reactions are not uncommon they are not confined to this method and, moreover, they appear to do no harm provided the bloods are well matched. Abdominal discomfort, and especially lumbar pain, are indications to stop the transfusion at once, since these symptoms arise from incompatibility of the bloods. Gross incompatibility is quite avoidable; safe grouping is easy to do with stock sera 2 and 3; but it should not be done hastily. I have not infrequently seen the brick-dust deposit appear in drop 2 after waiting five or ten minutes, though at first the individual seemed to belong to group 4, and I believe it is this delayed action in the drop 2 serum which is largely responsible for the incompatibilities which occur from time to time. Direct matching is perhaps safer.

There is another practical point in grouping, though I have no first-hand experience of it. It is said that ether alters the agglutinating properties of the patient's blood for 24 hours, and therefore a donor suitable before operation is not necessarily so during the post-operative period.

The clear indications for blood transfusion, so far as surgery is concerned, are low red cell count, low hæmoglobin content, and low blood pressure as a result of acute or chronic bleeding or persistent ill-health. Transfusion also lessens the coagulability time and so tends to make operation safe for hæmophiliacs and jaundiced patients; in the latter, it has the additional effect of improving the factors which make for acid-base imbalance, to which obstructive jaundice cases are peculiarly liable.

A transfusion of 500 to 600 c.cm. will be sufficient in most cases, but the decision as to amount must be based on experience. It may be necessary to do a second and third transfusion but, except in the acute cases of hæmorrhage with unusual loss, it is seldom necessary or, I think, advisable to administer larger amounts at one time.

It is a great mistake to regard blood transfusion as a last resource; indeed there is no doubt that it sometimes hastens the patient's death when it is so used. Moreover, this shows ignorance of the fundamental principles to which blood transfusion owes its truly remarkable beneficial effects. It is essential that the blood should be given warm and slowly; one might almost say the slower the better. This is another reason why I prefer the citrate method.

Various Methods

One could extend this paper indefinitely in discussing measures under this heading, and many of them have not been proved to effect definitely beneficial results. I will only mention a few. Patients shocked by injury or loss of blood are undoubtedly improved by radiant heat both before and after operation; as this promotes sweating it is an indication to increase fluid intake. Digitalis is given routinely by some to strengthen the heart; unless in or near the stage of decompensation, the heart muscle stands up very well to all reasonable demands which surgery may make on it, and I believe is seldom actually the cause of fatal results. The lungs and kidneys, too, though often blamed for fatalities, frequently show at autopsy insufficient evidence to substantiate this imputation, the fact being that they fail for reasons concerned with blood mechanics and chemistry. The use of drugs in this connexion becomes a matter of importance when pre-operative examination reveals functional impairment caused by an actual pathological defect.

DIET

In some work recently published by Mellanby[9] there is strong evidence to show that vitamin A plays the chief rôle in safeguarding the body against surgical infections. The absence of this accessory food factor appears to devitalise tissues, more especially mucous membrane and epithelium, laying them open to attack by any bacteria which may be about. He says animals on a vitamin-A deficient diet develop bronchopneumonia much more readily than those receiving this substance in abundance. In other words, bacterial invasion is secondary to defective diet, and can to a large extent be prevented if the accessory food factor known as vitamin A is supplied abundantly. The foods richest in this substance are milk, butter, and the yolk of eggs. It is, of course, quite a common practice to make milk one of the principal constituents of a diet before and after operation; whether we appreciate its full significance, and that of many other matters relating to food, is doubtful; I think we should get considerable help by a careful study and application of the facts which Mellanby and others, especially McCarrison, have discovered about diet. It is rather interesting to note that the

foods mentioned above are largely composed of fat, and it may be that the lungs have some function to perform in relation to fats; the fact that the thoracic duct with its fatty contents side-tracks the liver, and the first capillary contact is in the lungs, and also that fat is found in the blood of the left heart in lesser amount than in that of the right, seems to suggest that the lungs utilise the fat for some purpose.

THE LUNGS

The measures we can adopt to prevent complications in the lungs have to be applied for the most part at or after operation, and so do not come properly within the scope of this paper. I have no doubt that much of the general preparation we have been considering has an indirect beneficial effect on the lungs. I think perhaps we might do something more by making use of certain physiological techniques to determine functional efficiency and improve vital capacity, perhaps by systematic deep breathing. According to Henderson,[9] the circulatory volume depends not only on the heart and vasomotor system, but also on a third factor—the veno-pressor mechanism, which is mainly determined by general tonus of skeletal muscle, more especially of the abdominal muscles and particularly the diaphragm. In general, the degree of activity of respiration, the general tonus of the body, and the volume of the circulation vary together. Accordingly, it is found that in the physical depression after major operations certain conditions occur simultaneously; the diaphragm is relaxed, the vital capacity of the lungs is decreased, the tonus of the skeletal muscles and of the alimentary canal is lowered, and the volume of the circulation is diminished. Under carbon dioxide inhalation all these aspects of depression improve together; therefore I generally see that 10 per cent. carbon dioxide with oxygen is given at the end of the operation and for ten minutes in each hour for several hours after. Since many post-operative lung conditions originate in atelectatic areas, this hyperventilation should do a good deal as a preventive in this respect.

I should like to emphasise the importance of radiographing the chest before operation. I have seen several instances and know of many more in which a routine clinical examination of the chest has revealed nothing or next to nothing of real moment, and subsequent radiography has demonstrated quite extensive mischief even to the extent of cavitation. This is not only relevant to diagnosis, but must of necessity influence subsequent proceedings where an operation is imperative in spite of the lung condition.

THE LIVER

Crile recommends diathermy applied to the surface over the liver; I have tried hot bags, but not diathermy, without being able to convince myself that any useful purpose was achieved; however, I have every sympathy with methods which attempt to promote better action of the liver. It is a pity we have no really efficient liver function tests; on the liver depends very largely the quality of blood distributed to the body generally. We know from microscopic examination of pieces of liver removed at operation that some degree of hepatitis is almost invariably present in diseases of the biliary tracts, and may be very pronounced in cases of obstruction of the common duct by stone; yet so great is the liver reserve that we are frequently unable to demonstrate any definite departure from normal functional capacity. However, we should always prepare these patients as though we knew they had their hepatic reserve encroached upon, since they are apt to develop unmistakable evidence of this after operations for which adequate preparation has not been made.

The measures required are mainly those already discussed under the headings of water and glucose; one other needs special mention—viz., that directed against the tendency to hæmorrhage. This tendency is in some way related to jaundice of the obstructive type, whether it is overt or latent. Jaundice is due to hyperbilirubinæmia, and since deep jaundice may be present with no particular disposition to hæmorrhage it would appear that a high bilirubin content of the blood is not in itself the cause. What does seem to matter is whether or not the bilirubin curve is mounting; if it is, the tendency to bleed is a serious menace; if it is stationary or falling, this threat largely disappears. In other words, the behaviour of bilirubin probably gives a rough indication of the progress of hepatic damage, as blood-urea does with the kidneys. Some product of this injury as well as bilirubin is absorbed into the blood, or the damaged liver fails to manufacture a normal factor for coagulation, possibly fibrinogen, the normal coagulative processes being disturbed in either case.

It is clear, therefore, that operation should be postponed if possible until the jaundice begins to subside. Fortunately, this can be done in most cases when it is due to stone. Glucose tends to shorten the time of coagulation, probably because it improves liver function. It is customary to give one or more courses of intravenous injections of 5 c.cm. of 10 per cent. calcium chloride on three consecutive days before operation. This may or may not reduce the clotting time from say, ten minutes to three, but even if it does, the risk of hæmorrhage is not necessarily removed, according to my observations. Blood transfusion, on the other hand, seems quite definitely to abolish or greatly diminish this risk and in my opinion is the method of choice; at the same time it provides material which acts in many other ways for the good of the patient.

Occasionally it is necessary to drain the common duct at the earliest moment, irrespective of the hazards, in order to prevent extension of liver destruction; these cases are quite comparable with those of enlarged prostate in which drainage is required to save the kidneys, and as the principles are similar the measures adopted should be of the same nature as far as possible—the main indication being relief of back pressure, leaving the obstruction to be dealt with later. Preliminary drainage operations of this kind play a considerable part in preparing patients for major operations in many situations.

THE STOMACH

We are fortunate in being able to relieve the obstructed stomach without any formal operation, either by the ordinary stomach-tube passed at intervals or by an indwelling Jutte's tube. Once the patient has got used to the presence of the latter there is no doubt that this method is less distressing than the former, and it has this further advantage that fluids by mouth need not be restricted—the excess simply flows away by the tube. It should be remembered that in any case the system may be depleted of chlorides to a considerable extent, so that whatever fluid is taken by mouth should be supplemented by sodium chloride given through one of the non-physiological channels.

The stomach-tube is of the greatest importance in persistent post-operative vomiting, and should be used early. It is a therapeutic measure in certain cases, of equal or greater importance than

the rectal tube as an encouragement to the return of regular peristaltic action of the bowels.

Conclusion

To make patients safe for operation is perhaps the most important consideration in modern surgery. To do this intelligently it is essential that we should know in what way and to what extent things have gone wrong. This is becoming more and more a question of biochemical knowledge of the blood; as an example, compare what we know now about the kidneys in their relation to surgical procedure with what we knew when our information was almost limited to what we could gather from examination of the urine, and compare also the safety of operation.

There is still a long way to go; the little we know of so vital an organ as the liver is a sufficient indication of this, though even here blood investigation is shedding some light.

These biochemical considerations are not impractical and merely of academic interest; far from it. To the surgeon they are of the greatest importance, for he is beginning to realise that deaths attributed to this or that organ are in fact due to something more fundamental, the accused organ putting the finishing touch simply because it was obliged to give up the ghost owing to more basic defects.

It is a trite saying that prevention is better than cure; it was never more true than in relation to these matters. Undoubtedly to the patient the crucial event is the operation; to the surgeon the important question to be answered, in order to ensure the safety of his patient, is often enough when, rather than how, to operate; and the answer to this question, if it is not to be a mere guess, involves a knowledge of things which carries him far beyond the borders of mere operative technique.

REFERENCES

7. Woodyatt, Sansum, and Wilder: Jour. Amer. Med. Assoc., 1915, lxv., 2067.
8. Mellanby, E.: Brit. Med. Jour., 1931, i., Suppl., p. 85.
9. Henderson, Y.: Jour. Amer. Med. Assoc., 1931, xcvii., 1265.

TREATMENT OF HAY-FEVER
BY DESENSITISATION AND WITH ACID

By Harry Beckman, M.D.

PROFESSOR OF PHARMACOLOGY, MARQUETTE UNIVERSITY, MILWAUKEE, U.S.A.

In this paper I wish to institute, very briefly, certain comparisons between the desensitisation method of treating hay-fever, which has been with us quite a while now, and the use of nitrohydrochloric acid, which, though reintroduced by me [1] in 1927, is only in the past two years coming into its own.

DESENSITISATION

In desensitisation probably the usual practice is to give about 16 injections at intervals of five to seven days, the time of the last injection to coincide approximately with the beginning of the patient's "season," or either to ante-date or post-date that time by a few days. Of course, the immunity conferred by these injections, when they are successful, is only sufficient, in the vast majority of instances, to carry the patient through his season, and even then only if the season is a short one; the whole course of treatments must be gone through again during the next year.

In regions where pollens are in the air continuously, as in the southern United States, recurrence of symptoms is the rule a few weeks after cessation of the injections. Under these conditions, Kahn [2] adopted the practice of giving the maximum protective dose every six or seven days after this dose had been established, and had ceased to cause any local reaction. The inadvisability of teaching patients to give this treatment to themselves, as advocated by Kahn and by Stewart [3] (the originator of "perennial" treatment), is indicated by a severe uterine spasm which followed in one of Kahn's cases. Vander Veer, Cooke, and Spain [4] have been continuing once a month throughout the year an injection of the maximum dose attained during the season; their patients so treated obtained greater relief from the more intensive treatment when it was resumed for the succeeding season, but their constitutional reactions were considerably increased in incidence. Vaughan [5] continues the treatments through the season with maximum or somewhat reduced dosage at two or three week intervals (occasionally at one, two, or three day intervals with much reduced dosage); after the season he continues a dosage of one-fifth the quantity of the dilution used at the height of the season, increasing the dosage up to full quantities again for the next season. With intervals of two weeks for these between-season injections, he has seen no severe reactions. In Figley's [6] experience, with monthly injections of maximum doses, constitutional reactions occurred at the rate of 1 to 200 injections. In recent years Freeman [7] in London has been using his "rush" method with increasing satisfaction—i.e., he waits for the onset of symptoms, then hospitalises the patient, and goes through the whole course of injections in a very few days.

As I read the reports of some of my friends, the allergists, or listen in abashed silence to their discussions, I marvel that we are able to accord no more than bemused credence to the records of medieval practitioners. What marvels of divisibility do we find here, in our own day! Patients, it would seem, can no longer be simply divided into groups of those who are helped by the treatment and those who are not, but must be described as persons who have obtained "slight relief, but——," or "no relief except for——." May I state with modest firmness that I reject all of this? The symptomatology of hay-fever is tremendously variable not only from season to season but from day to day, and therefore only marked or complete relief or unqualified failure can really be recognised. In Table I. will be found the results obtained by several leading allergists, with all instances in which less than marked relief was obtained included among the failures.

TABLE I

Relief Obtained by Desensitisation in 2185 Cases of Hay-fever

Authority.	Cases.	Complete relief.	Marked relief.	Slight relief.	No relief.
Rackemann [9]	91	% 9·0	% 62·0	% —	% 28·0
Vander Veer [9]	1744	23·0	49·0	18·0	10·0
Bernton [10] ..	56	25·0	40·0*	24·0*	10·0
Piness [11] ..	202	29·6	40·0	21·4	9·1
Smith [12] ..	92	10·0	65·0	19·0	6·0
Averages		19·3	51·2	20·6	12·6
		Average success 70·5		Average failure 33·2	

* 16 per cent. were said to have been relieved 50 per cent. of their symptoms; I have considered it fair to allot half this number to the "slight" and half to the "marked" relief columns.

Piness [11] has stated that the average of complete relief obtained by all workers is about 23 per cent.; that it is only 19·3 per cent. in this Table is doubtless due to differences of opinion with regard to classifying patients as obtaining "marked" or "complete" relief. In round numbers, however, there are admittedly 30 per cent. of failures. Two additional

facts, not observable in the Table, should also be mentioned. First, that some of those who obtain no relief are actually made worse by the treatment; one expert allergist, Caulfeild,[18] places this number at 2·3 per cent. of the total number treated. Secondly, that both local and constitutional reactions are of frequent occurrence, and both types are oftentimes severe; a few deaths have been recorded.

I think a fair summary of the present status of this type of therapy would be as follows. Of the total number of hay-fever sufferers who will submit to desensitisation, approximately two-thirds will be very considerably relieved, while no relief will be obtained by the other third; also, a considerable number of the patients will have to undergo local and constitutional reactions of varying severity; and, finally, as a result of the treatments, from 2 to 3 per cent. of the total number of patients will have worse symptoms than they had ever experienced before. And, be it noted, these are the results obtained by expert allergists, who confine their practice to this class of maladies exclusively; it is quite generally acknowledged that in the hands of the profession at large the results are very poor.

NITROHYDROCHLORIC ACID

In 1918 my friend, Dr. Frederick Speidel, called my attention to Bishop's[14] advocacy of this drug in the treatment of hay-fever as long ago as 1893; the welter of papers at that time appearing on the uric acid "diathesis" theory, and the rapid recognition of the causal relationship of pollens to the disease, had completely smothered Bishop's contribution save for the reference to it which Gleason[15] has always carried in the successive editions of his well-known text-book of oto-laryngology. Believing that a valuable drug might have been overlooked by the profession at large, I began to use the acid in the treatment of such casual cases of hay-fever as came my way, and was able to report in 1927 upon a total of 17 cases. But still the remedy, with only my own—perhaps a bit too insistent—voice recommending it, did not come into any considerable vogue until just recently, when the very straitened circumstances of many patients in this country has caused physicians to turn a kindly ear towards those who can offer in any department of therapeutics a remedy that is at once simple, effective, and inexpensive. In the 1932 season it had a thorough trial; indeed, it leaped out of the hands of the prescribing physician and was offered over the counter by druggists in many parts of the land under such opprobrious titles as the Scientific Hay-fever Cure and Michigan's Remedy for Hay-fever, &c. Table II. shows the results obtained in 518 patients treated with the acid under careful observation. Only a few of them have been seen by me, the majority having been reported to me without solicitation by physicians who have been sufficiently interested to study their cases carefully. It will be seen that 69 per cent. have obtained marked or complete relief from symptoms.

TABLE II

Relief Obtained by Use of Nitrohydrochloric Acid in 518 Cases of Hay-fever

Cases.	Complete relief.	Marked relief.	Successfully treated.	No relief.
518	36%	33%	69%	31%

At first I prescribed ten drops of the full-strength acid to be placed in water just before taking, but I soon gave up this method because of the reluctance of druggists to dispense the prescription and the difficulty of handling the corrosive acid in the home. Recently the following prescription has been written, and is the one used by the majority of the physicians whose reports are included in the Table:—

℞
Nitrohydrochloric acid (full strength) ℥ iv. ss
Distilled water to make .. .. ℥ iv.

The patient is directed to take one teaspoonful of this in two-thirds of a glass of water, followed by a similar portion of water, after each meal and upon retiring (as near midnight as possible). This is a pleasantly acid but not corrosive-tasting mixture, which may be dispensed in the usual bottle with a cork stopper. The nitrohydrochloric acid used is that of the U.S. formulary, consisting of 18 parts of full-strength nitric acid, to which is added full-strength hydrochloric acid sufficient to make the total up to 100 parts. If the mixture does not effervesce for a short time it should be rejected, as the nitric acid used is probably not strictly fresh; storage should be in brown bottles, and only a small quantity should be made at one time. The midnight dose is very important; when it is omitted the patient will almost invariably have early morning symptoms. The ingestion of the acid, even in this large dosage, cannot be looked upon as in any sense dangerous. None of the patients (some of whom have found it necessary to take a full dose every two hours during their worst days) have experienced reactions of any more serious nature than a slight diarrhœa or diuresis, and either of these only very rarely. One precaution, however, I have always taken—namely, that of forbidding the taking of any laxatives not prescribed by me, as there is perhaps some very slight danger of calomel being converted into corrosive sublimate by the acid.

COMPARISON OF DESENSITISATION AND ACID TREATMENTS

Table III. offers a statistical comparison of the two types of treatment, in studying which it should be borne in mind that I am comparing here the results obtained by general practitioners using the acid, with those of expert allergists using the desensitisation method. Obviously this is more than fair to desensitisation, since general practitioners have no such success with it as is indicated here. In their recent exhaustive treatise on the allergic diseases, Coca, Walzer, and Thommen[16] state their belief that this acid therapy is the most promising of the new departures in the treatment of hay-fever, and I truly believe that this is so.

TABLE III

Comparison of Results in Acid and Desensitisation Treatment of Hay-fever

—	Cases.	Complete relief.	Marked relief.	Successfully treated.	No relief.
Acid treatment.	518	36	33	69	31
Desensitisation.	2185	19	51	70	30

The rationale of the treatment, equally with that of desensitisation, is still undetermined, but in the current literature (1930) I have offered the hypothesis that an acid-base imbalance may be the underlying factor in allergy. Time or opportunity to undertake a thorough investigation of the proposition has not as yet been afforded me, but the position is beginning

to be substantiated to some extent by other investigators.

REFERENCES

1. Beckman, H.: Amer. Jour. Med. Sci., 1927, clxxiv., 525; Wisconsin Med. Jour., 1928, xxvii., 253; Ibid., 1932, xxxi., 533; Med. Jour. and Rec., 1929, cxxxiii., 9; Treatment in General Practice, Philadelphia, 1930; Jour. Allergy, 1930, i., 496; Jour. Amer. Med. Assoc., 1930, xcv., 1582.
2. Kahn, I. S.: Jour. Lab. and Clin. Med., 1927, xiii., 77; Jour. Amer. Med. Assoc., 1928, xc., 2101.
3. Stewart, Z. W.: Women's Med. Jour., 1931, xxxviii., 249.
4. Vander Veer, A., Jr., Cooke, R. A., and Spain, W. C.: Amer. Jour. Med. Sci., 1928, clxxiv., 101.
5. Vaughan, W. T.: Jour. Amer. Med. Assoc., 1931, xcvii., 90.
6. Figley, K. D.: Jour. Allergy, 1930, ii., 39.
7. Freeman, J.: THE LANCET, 1930, i., 744.
8. Rackemann, F. M.: Boston Med. and Surg. Jour., 1920, clxxxii., 295.
9. Vander Veer, A., Jr.: Amer. Jour. Med. Sci., 1922, clxiv., 97.
10. Bernton, H. S.: Jour. Amer. Med. Assoc., 1923, lxxx., 1301.
11. Piness, G.: Ibid., 1925, lxxxiv., 584.
12. Smith, W. A.: Mil. Surg., 1927, lxi., 560.
13. Caulfeild, A. H. W.: Jr. Amer. Med. Assoc., 1922, lxxix., 125.
14. Bishop, S. S.: Ibid., 1893, xxi., 809; Diseases of Ear, Nose, and Throat, Philadelphia, 1897.
15. Gleason, E. B.: Manual of Diseases of Ear, Nose, and Throat, Philadelphia.
16. Coca, A. F., Walzer, M., and Thommen, A. A.: Asthma and Hay-fever in Theory and Practice, Baltimore, 1931, p. 748.

THE TREATMENT OF ACUTE APPENDICITIS

BY R. J. McNEILL LOVE, M.S. LOND., F.R.C.S. ENG.

SURGEON TO THE ROYAL NORTHERN HOSPITAL; LATE SURGICAL FIRST ASSISTANT, LONDON HOSPITAL

CASES of acute appendicitis can be broadly divided into four groups—early cases, subsiding cases, those in which inflammation is still confined to the vicinity of the appendix but shows no evidence of subsiding, and those complicated by general peritonitis.

All are agreed that early cases are in urgent need of appendicectomy. Cases obviously subsiding are usually allowed to subside. It is the third group which merit careful consideration, and which are commonly seen 48 hours or more after the onset. They show a variable elevation of temperature and pulse-rate, and three quadrants of the abdomen are relatively free from tenderness or rigidity, but these signs are present in the right iliac fossa or right loin or on rectal examination a tender swelling is palpable on the right side of the pelvis.

From the second day onwards the indefinite mass in the appendicular region indicates local peritonitis, although in some cases suppuration has already occurred. The surgeon has the choice of two lines of treatment, either immediate operation or expectant measures.

If immediate operation is attempted, appendicectomy is often extremely difficult, or may even have to be abandoned after prolonged searching and considerable trauma to tissues. The congestion and turgidity of the bowel and omentum, the friability of the tissues, and the presence of adhesions are all stumbling-blocks to a well-executed operation. Moreover, however gentle interference may be, or however carefully packing is inserted, the early protective adhesions are easily separated, and general peritonitis may result when originally only a local infection was present.

Surgical interference appears to be particularly dangerous during the third to fifth days inclusive. During this period natural immunity to infection is exhausted and acquired immunity has not yet been established—that is, the patient is in a "negative phase." Operative interference, by exposing fresh planes to infection, accelerates the absorption of toxins at a period when the patient is unprotected and least prepared to deal with them. In the series of cases from the London Hospital[1] the mortality in 168 cases of purely local peritonitis from the third to fifth days inclusive was 13·7 per cent. In 738 cases operated upon at the London and St. Thomas's Hospitals[2] during all stages of local peritonitis the mortality was 5·8 per cent.

In addition to this immediate mortality incidental complications and sequelæ are encouraged. Drainage is necessary in many cases, and the proximity of a drainage-tube predisposes to the formation of a fæcal fistula. Separation of adhesions promotes the formation of secondary abscesses, either residual, pelvic, or subphrenic. Moreover infection of the abdominal wall results in a weak scar and encourages a subsequent incisional hernia.

EXPECTANT TREATMENT

Let us now consider the question of expectant treatment in these cases of localised peritonitis. It must be emphasised that if expectant treatment is adopted it must be rigorously enforced. There must be no relaxation of the four "F's" which are Fowler's position, fomentations, fluids only, and a four-hourly chart. Fluids include saline by any convenient route, and a minimum of water by the mouth until improvement is obvious. The four-hourly chart symbolises constant observation. It is generally agreed that expectant treatment is, as a rule, not suitable for children or the aged. Children are unlikely to give an accurate history, and have usually been the unwilling recipients of purgatives; even if the stomach wisely rejects the first dose, the mother usually wins in the end.

Also expectant treatment is only advisable if efficient nursing is available and the patient is under the constant supervision of the surgeon. Needless to say, if any doubt exists regarding the diagnosis, expectant treatment is not considered.

If expectant treatment is adopted, one of the three following eventualities occur:—

(1) Expectations are happily realised, the temperature and pulse-rate fall, tenderness and rigidity disappear, and the local inflammation resolves. Rayner[3] states that 50 per cent. to 60 per cent. resolve. Adams, at St. Thomas's, found that 67 per cent. subsided. In an analysis of 341 cases at the London Hospital inflammation subsided in 232, or nearly 70 per cent. Perhaps a fair estimate of cases subsiding would be about 65 per cent. In these cases the appendix should be removed three months later. The patient then enjoys the benefit of a clean operation with a negligible mortality, and contrary to expectations the freedom from adhesions is remarkable.

(2) The second possibility in cases treated expectantly is the formation of an abscess, which occurs in about 25 per cent. of cases. An appendicular abscess is no reason for panic. In fact, I consider the localised pus of an appendix abscess as comparable to the "good and laudable pus" of our forefathers. It indicates that the resistance of the patient is capable of arresting the spread of infection. As Rayner says: "if the mass becomes converted into an abscess the patient has gained rather than lost by the delay." Expectant treatment is still adopted even when an abscess is present, but simple drainage of the abscess may be advisable for two reasons:—

(*a*) Increase in the size of the abscess, owing to the risk of rupture into the general peritoneal cavity. Usually an abscess which ruptures does so into the bowel and is evacuated per rectum, but it is unwise to await this natural method of relief.

(*b*) Slow absorption of the abscess, owing to the risk of visceral degeneration from toxæmia.

Gas-and-oxygen anæsthesia is usually sufficient for drainage of an abscess. After drainage or absorption of the abscess appendicectomy is performed three months later. In 442 cases at the London Hospital in which suppuration occurred the mortality was 4·5 per cent., at St. Thomas's in 95 cases the mortality was 4·2 per cent.

(3) The third possibility in cases treated expectantly is that this method must be abandoned owing to exacerbation of pain, increase of local tenderness and rigidity, or elevation of the pulse and temperature. It is these cases which cause surgeons who lean towards expectant treatment to hesitate. They feel that what has been gained on the roundabouts of inflammatory resolution may be lost on the swings of spreading inflammation.

The risk of failure of expectant treatment is calculated by the numbers in whom expectant treatment fails, and the mortality which accompanies failure. We have seen that in different series of cases treated expectantly resolution occurred in 65 per cent. of cases, 25 per cent. formed a local abscess, which leaves 10 per cent. in whom expectant treatment was abandoned. In the London Hospital series of cases the mortality in cases unsuccessfully delayed was 6·4 per cent. This is somewhat higher than Rayner's figures, for in 79 of his cases of localised peritonitis only 4 deteriorated under expectant treatment. with 2 deaths—a mortality of under 3 per cent.

Combining these figures the mortality is approximately 6 per cent. in cases in which expectant treatment is abandoned, which is very little more than the 5·8 per cent. among the 738 cases treated by emergency operation. To summarise the position, in cases of localised peritonitis—

Immediate operation :—
Mortality 5·8 per cent.
Expectant treatment :—
65 per cent. resolve, subsequent mortality under 1 per cent.
25 per cent. form local abscess, mortality 4·5 per cent.
10 per cent. expectant treatment abandoned, mortality 6 per cent.
Average mortality with expectant treatment under 3 per cent.

OBJECTIONS TO EXPECTANT TREATMENT

Some of the criticisms levelled against expectant treatment may be considered briefly :—

(1) Public opinion may be influenced, and medical assistance postponed. This criticism is answered by the insistence that every case of acute appendicitis requires urgent surgical treatment, but this treatment may be either operative or expectant.

(2) It is impossible to foresee whether infection will spread or subside. Against this there is the equal impossibility of assessing the resistance of the patient, and figures show that about 65 per cent. of cases do subside.

(3) Delayed treatment imposes a considerable tax upon the courage and judgment of the surgeon, and frequent examinations are necessary in order to determine whether infection is progressing or abating. However, these considerations should be of no moment if repaid by diminished mortality lists and fewer complications.

I feel sure that psychological reasons are a great deterrent to the adoption of expectant treatment. If a case treated on delayed lines ends fatally it is usually regarded as a tragedy, and all concerned may have lingering doubts in their minds as to whether immediate operation would not have saved the patient. On the other hand, if the appendix is immediately removed and the patient succumbs, the general impression is that because immediate operation was performed everything possible was done, and the fatality is accepted philosophically.

Also old beliefs die hard ; and a former surgical axiom has been "where there is pus, let it out." But of recent years surgeons have placed greater confidence in the recuperative powers of the peritoneum. Mr. James Sherren,[4] after 20 years' experience at the London Hospital, stated : "The only change I have made has been to greater conservatism and more patience in dealing with cases of appendix abscess." I feel confident that those who have the courage to treat cases of "perityphlitis" on expectant lines will be more than satisfied with the results.

REFERENCES

1. Love, R. J. McN. : Brit. Jour. Surg., 1924, xii., 232.
2. Adam, J. E. : Brit. Med. Jour., 1925, i., 723.
3. Rayner, H .H. : Clin. Jour., March, 1933.
4. Sherren, James : Brit. Med. Jour., 1925, i., 727.

A METHOD FOR THE ENUMERATION OF BLOOD-PLATELETS

By John N. Cumings, M.D., M.R.C.P. Lond.
ASSISTANT PATHOLOGIST, KING'S COLLEGE HOSPITAL

Since mammalian platelets were first described by Donne (cited by Degkwitz [1]) various methods have been introduced for their enumeration, and each gives a slightly different figure for the normal adult. Mackay [2] quotes 11 methods, and their figures, and adds a further one of his own. Goadby [3] in his method, as do others, makes use of a paraffined container for the dilution of the blood, but he uses a stain in the diluting fluid, and this may lead to error, particularly error due to precipitation of the stain. Sodium citrate has been used as a diluent and is free from this disadvantage.

THE METHOD AND RESULTS

In 1910 Tyrode [4] introduced a fluid for perfusion experiments which has received wide attention for this and similar purposes. Flössner [5] made use of this fluid as a diluent for platelet counting, but he omitted the glucose in it, and added to five parts of this solution one part of a 1 per cent. sublimate saline solution. Using this solution he performed 75 counts on 25 normal adults, obtaining an average count of 760,000 per c.mm. in men and 682,000 per c.mm. in women, the extremes being 630,000 per c.mm. and 906,800 per c.mm. This solution has been used for some time with very successful results. One alteration has been made in the solutions; that and the technique used will first be described.

To Tyrode's solution without the glucose is added mercuric chloride to give a strength of 1 in 10,000 in order to prevent any bacterial growth ; five parts of this are added to one part of 1 per cent. sublimate saline (using normal saline) immediately before use and without filtering either fluid. Blood is obtained from the ear by pricking through a drop of the diluting fluid, and allowing the blood to flow directly into the diluting fluid, which is in a small paraffin bowl (about 1 × ½ × ½ in.), without using any local pressure. By means of a paraffin rod, or better, by means of a piece of glass tubing coated within and without with paraffin through which air can be blown by means of a rubber teat, the contents are thoroughly mixed. The exact degree of dilution is that which, by experience, is shown to give the greatest ease of enumeration, some idea of which will be given later. The ear is carefully dried and blood taken for a red blood corpuscle count, which is performed in the usual manner.

By means of the glass mixer a drop of the diluted blood is placed on a counting chamber, and the cover-slip applied. After the red cells and platelets have settled, usually in ten minutes, the platelets are counted against the red cells, a thousand of the latter being enumerated, using a high-power eyepiece and a dry lens. It is convenient to have

about 150 red cells in a field, and the original dilution of the blood should be such as to give this figure. The count should always be performed within half an hour after collection. The counting chamber should be kept specially for platelet counts, and very carefully cleansed before use; if found to be scratched it must be discarded. A drop of the diluting fluid should occasionally be examined to see that no free particles, such as might resemble platelets, are present.

The platelets are easily recognised as highly refractile particles, varying in size from about one-eight to one-half the diameter of a red cell. Their shape is round, oval, or oblong, with well-defined edges, and they show no movement once they have settled on the counting chamber. Sometimes appendages such as Watson [6] describes can be seen, and a platelet may sometimes be seen apparently protruding from a red cell as Schilling [7] has noted. No trouble has ever been experienced from clumping of the platelets, and red cell clumping has only occurred in one case of purpura hæmorrhagica. Watson found in his preparations that the red cells degenerated and that some of the resulting particles resembled platelets. Using the method described above, no such degeneration has been observed in some hundreds of counts, even when kept for 24 hours.

The following are counts on 11 normal adults, and will be seen to confirm Flössner's findings.

	Red blood corpuscles per c.mm.	Platelets per c.mm.		Red blood corpuscles per c.mm.	Platelets per c.mm.
A	5,050,000	630,000	G	4,990,000	620,000
B	5,040,000	670,000	H	5,320,000	620,000
C	5,390,000	750,000	I	6,040,000	700,000
D	5,430,000	740,000	J	6,180,000	700,000
E	5,170,000	760,000	K	5,740,000	590,000
F	4,990,000	700,000			

No alteration in the platelet count has been found whether the blood be collected from the ear or from the finger, but the use of sodium citrate as the diluent reduces the total count by between 200,000 per c.mm. and 300,000 per c.mm. in normal adults. Goadby states that with his method no reduction in the number of platelets occurred on keeping the diluted blood, even after four hours, whereas Flössner noted that a marked decrease, even up to 50 per cent. might occur in two hours. Hofmann [8] agrees that this fall is seen in the smaller platelets and thinks they are less resistant.

My findings have confirmed those of Flössner, and have given a total count of about 400,000 per c.mm. after keeping the diluted blood for three hours.

PLATELET COUNTS IN THE NEWLY BORN

Schilling states that new-born babies have higher platelet counts than the normal adult. Benhamou and Nonchy [9] quote one case in support of the contention that there is no difference, whilst Jarcho [10] —who gives a full bibliography—after the examination of 100 normal children within the first 48 hours of life, comes to the conclusion that the average count is lower than the average adult count. The majority occur in the range of 150,000 to 250,000 per c.mm.

The following are counts performed on seven babies within the first 24 hours of life, and the results are seen to be in agreement with the findings of Jarcho.

Hrs.	Red blood corpuscles per c.mm.	Platelets per c.mm.	Hrs.	Red blood corpuscles per c.mm.	Platelets per c.mm.
L 18	6,020,000	420,000	P 24	7,060,000	200,000
M „	5,180,000	300,000	Q „	5,780,000	200,000
N 12	5,460,000	500,000	R „	5,280,000	350,000
O 24	5,280,000	310,000			

The platelets in two cases of melæna neonatorum have been enumerated, and in one the low figure of 84,000 per c.mm. was found, whilst the other gave a low normal figure. Von Reuss (cited by Greenwald [11]) states that there is no reduction of platelets in this condition, and Kugelmass [12] also gives a figure of about the normal. Morse [13] records two of these cases associated with thrombocytopænia, and Pickering [14] includes in his classification of the hæmorrhages of the new-born such cases with thrombocytopænia which resemble purpura hæmorrhagica.

COUNTS IN PATHOLOGICAL CONDITIONS

In other conditions such as lymphadenoma, hæmophilia, polycythæmia vera, aplastic anæmia, pernicious anæmia, acholuric jaundice, and splenic anæmia the platelets have been enumerated, and the results have been found to be comparable to those obtained by other methods. In purpura hæmorrhagica very low counts (under 100,000 per c.mm.) have been obtained in every case; although Little and Ayres [15] and Mackay [2] have seen cases in which there was no reduction. In other forms of purpura the platelets have been normal or only slightly reduced.

Myers, Maingot, and Gordon [16] found in two of their cases of purpura hæmorrhagica associated with thrombocytopænia that there were markedly fewer platelets in the splenic vein than in the splenic artery. Both of these cases recovered and the platelet counts rose after splenectomy. Holloway and Blackford [17] found in the dog that the splenic artery contained slightly fewer platelets than the vein. The following Table gives the platelet counts of four cases similarly examined, of which Cases 1–3 were purpura hæmorrhagica, while Case 4 was an aplastic anæmia. There is relatively little difference between counts from vein and artery in any of the four.

Case	1	2	3	4
Splenic artery	33,000	27,300	163,000	194,000
Splenic vein	29,000	26,600	190,000	142,000

AN ALTERNATIVE TO TOISON'S SOLUTION

It having been noticed that the red and white blood corpuscles maintain their size and shape so well, and that clumping does not occur in the solution used for counting platelets, it was thought that if a suitable dye was added it might replace Toison's solution. It would be especially valuable in leukæmias where the white cells frequently undergo autolysis. Accordingly to Tyrode's solution without the glucose but with 0·16 per cent. mercuric chloride various dyes were added in varying strengths. Brilliant cresyl blue was finally selected and a 1 per cent. solution in the fluid made, this resulting solution being filtered. This solution will keep for months, remaining stable and without becoming infected.

It has been found that this solution gives identical results with Toison's solution, but possesses the following advantages: the cells settle on the counting chamber much more quickly, usually in about three minutes; the red blood corpuscles maintain their size and shape extremely well, and this is particularly noticeable in pernicious anæmia; the white blood corpuscles show up well and do not autolyse. A number of cases of leukæmia have now been examined using this fluid, and excellent results have always been obtained.

DISCUSSION

There have been many methods for platelet enumeration and almost every one gives a different average figure for its result. These methods can be divided into three groups. First, that in which direct counting is performed in a counting chamber; this is inaccurate. Secondly, counting on a smear

against red blood corpuscles, which is also inaccurate. Lastly, there is the use of a diluent, of which there are many from which to choose.

Platelets are very easily damaged; one can disintegrate them by the pressure of a cover-slip on a slide containing some diluted blood. They also very easily clump, either to each other or to red blood corpuscles. It is of the utmost importance to obtain a diluting fluid and to employ such methods as do not damage the platelets and also prevents their clumping. Most of the methods employing a stain, such as brilliant cresyl blue, result in low counts and therefore the platelets cannot be well preserved in such fluids, with the exception of the one used by Dameshek,[18] who obtained figures for adult males similar to those which I obtain by the method I use. With the method described in this paper there is no clumping, and this is partly the result of using paraffin containers, which, unless direct specimens are made, as in Dameshek's method, should always be employed. Olef[19] also obtained figures of about 600,000 per c.mm., and this is probably because he also used paraffin bowls.

The platelets most liable to be damaged seem to be the small ones, as can be seen by leaving the diluted blood for a few hours; it is essential that these small platelets should be well preserved, and the addition of mercuric chloride to the diluting solution seems to ensure this when used in conjunction with paraffin containers. In those methods where the smaller platelets are not seen, there is of course no alteration of the count after leaving the diluted blood some hours (Goadby).[3]

Recently I have used the oil-immersion lens instead of a high-power dry lens, and a drop of the diluted blood between a slide and a cover-slip instead of on a counting chamber, and have obtained similar results by both methods.

SUMMARY

(1) A slight modification of Flössner's method of counting platelets is described, and his figures for this method—about 700,000 per c.mm. for a normal adult—are confirmed. (2) The platelets in the splenic vessels have been examined in cases of splenectomy. (3) An alternative solution to Toison for the diluting of blood in performing red and white blood corpuscle counts is suggested.

I wish to thank Dr. E. ff. Creed for suggesting this subject for investigation, and the staff of King's College Hospital for allowing me to use their cases.

BIBLIOGRAPHY

1. Degkwitz, R.: Folia Hæmatologica, Leipzig, 1920, xxv., 153.
2. Mackay, W.: Quart. Jour. Med., 1931, xcv., 285
3. Goadby, H. K.: Jour. Path. and Bact., 1930, xxxiii., 1171.
4. Tyrode, M. V.: Arch. Int. de Pharm. et de Therap., 1910, xx., 205.
5. Flössner, G.: Zeits. f. Biol., 1922, lxxvii., 113.
6. Watson, C. H.: Edin. Med. Jour., 1932, xxxix., 229.
7. Schilling, V.: The Blood Picture, Trans. R. B. H. Gradwohl, London, 1929.
8. Hofmann, F. B.: Deut. med. Woch., 1926, lii., 861.
9. Benhamou, Ed., and Nonchy, A.: Compt. rend. Soc. de biol., 1931, cvii., 171.
10. Jarcho, J.: Arch. of Pediat., 1930, xlvii., 230.
11. Greenwald, H. M.: Amer. Jour. Dis. Child., 1927, xxxiii., 900.
12. Kugelmass, I. N.: Med. Clinics North Amer., 1931, xiv., 1523.
13. Morse, A. H.: Amer. Jour. Obst. and Gyn., 1925, x., 590.
14. Pickering, J. W.: Blood Plasma in Health and Disease, London, 1928.
15. Little, W. D., and Ayres, W. W.: Jour. Amer. Med. Assoc., 1928, xci., 1251.
16. Myers, B., Maingot, R., and Gordon, A. K.: Proc. Roy. Soc. of Med., 1926, xix., Clin. Sect., p 37.
17. Holloway, J. K., and Blackford, L. M.: Coll. Papers of Mayo Clinic, 1924, xvi., 521.
18. Dameshek, W.: Arch. Internal Med., 1932, l., 579.
19. Olef, I.: Ibid., 1930, xlvi., 585.

Clinical and Laboratory Notes

ACUTE TRAUMATIC MASTOID ABSCESS

By Macleod Yearsley, F.R.C.S. Eng.
CONSULTING AURAL SURGEON TO THE ST. JAMES'S HOSPITAL, LONDON

Acute mastoid abscess directly due to injury is rare; I might say, very rare. During over 30 years' experience of mastoid surgery, I have never met with a case until now, nor have I been able to discover any published account of one, while inquiry of professional friends has also drawn a blank. The following example, therefore, appears to be well worth record.

A girl, aged 6½ years, stated to have been previously quite healthy, was admitted to the St. James's Hospital on April 6th, 1933. Five days earlier she slipped and fell, striking the right ear and side of the head against the curb. On reaching home she vomited, and complained of headache. There was no wound of the auricle and no bleeding from the ear. During the interval between the accident and her admission she complained of pain round about the ear, but at no time was there any otorrhœa. No deafness was noted by the parents, nor had she ever had any affection of the ears.

On admission the temperature was 100° F., pulse-rate 108, respirations 24. The tongue was coated, and the bowels had lately been irregular. Nothing noteworthy was to be seen in throat or nose. There was no scar or other sign of recent injury to the auricle, and there was no pus in the meatus. The right membrane was intact and of normal inclination and lustre, but showed very moderate flushing of Shrapnell's membrane, extending along the handle of the malleus. Over the region of the mastoid antrum there was a very faint blush, discernible only by comparison with the opposite side; at this spot there was tenderness on pressure. No deafness was detected.

Operation.—On baring the bone after the usual mastoid incision a faint bluish-green tinge was apparent over a space about the size of a threepenny-piece in the region of the *tache spongieuse*. The external wall of the mastoid was thin, and the gouge at once penetrated a cavity beneath, from which thick yellowish pus welled up along the groove of the instrument. This cavity was the size of a Barcelona nut kernel, and contained creamy pus mingled with bony spicules and detritus. This was cleared until the walls were hard and smooth; no erosion of the antral roof or inner wall was found. The cavity was filled with B.I.P.P., and packed, the wound being partly closed in its upper part by two sutures.

A culture from the pus gave a pure growth of non-hæmolytic streptococcus.

Further Course.—The case progressed well, the child being happy and fairly lively until April 19th, when there was a moderate irregular fever, accompanied by copious diarrhœa for 24 hours. At my ward visit on April 20th the temperature was falling. Purulent discharge from the wound and meatus was free, and the granulations exuberant; the child did not seem very ill, but smiled and talked with me. By the 26th the temperature was down and the diarrhœa had practically ceased. When I saw her on the 27th pus was still fairly copious, and she was given 10 c.cm. of antistreptococcic serum. On May 4th the wound was much cleaner, the discharge considerably less, and her general condition was good. She became suddenly worse on May 8th, with rising temperature. On May 10th she was febrile, with headache and vomiting, followed by lethargy. Pupils dilated, reacting. Neck stiff, head retracted. Kernig's sign doubtful. Knee-jerks +. Plantar ↓↑. Superficial abdominal reflexes absent. Erythematous rash on chest and limbs. Lumbar puncture gave turbid fluid under great pressure; and this was drained until the pressure had considerably lessened.

Examination of C.S.F.—Turbid, with much pus; albumin 0·55 per cent. Loaded with streptococci. A culture gave short-chained non-hæmolytic streptococci. The child was very ill, but the wound was nearly healed and the otorrhœa less. Further operation was deemed inexpedient, and she was ordered 30 c.cm. of antistreptococcic serum to be given every 24 hours. She improved slightly at first, but later became increasingly lethargic, and died on May 17th.

The mastoid abscess in this case was evidently the result of an acute osteomyelitis following injury, such as is common in children in other parts of the

skeleton after bruising. The antrum was in all likelihood implicated by extension from the surrounding bone, the debris found in the abscess cavity suggesting that the mastoid was a diploëtic, possibly a pneumatic-diploëtic one, and "acute osteomyelitis of the mastoid" would be a more correct description of the condition. The Schwartze operation was performed, since nothing in the child's condition called for a more extensive procedure, and the tympanum was not then involved. It may be noted that the blow received by falling on the curb was sufficient to bruise the bone, but not to cause any serious concussion, nor to affect the labyrinth, since at no time was deafness complained of, nor was it found on examination. The slight flushing of Shrapnell's membrane is often seen in acute mastoiditis without middle-ear involvement, and did not necessarily indicate that the tympanum was threatened. The case did well at first, in spite of the transient temperature and diarrhœa 20 days later. The unfortunate onset of meningitis was unexpected. This complication may have been due to spread of the local osteomyelitis or to general infection. The use of antistreptococcic serum in large doses intravenously at first appeared to have a good effect. The draining by lumbar puncture was efficient, and a further exploration of the ear did not commend itself, as the wound was healing, and a second operation might well have hastened the fatal termination. It was, in view of the rarity of traumatic osteomyelitis of the mastoid, unfortunate that no post-mortem examination could be obtained.

AN OPERATION FOR SPONDYLOLISTHESIS

By B. H. Burns, B.Chir. Camb., F.R.C.S. Eng.
ORTHOPÆDIC SURGEON TO ST. GEORGE'S HOSPITAL

In cases of spondylolisthesis the usual operation of spinal fusion from behind does not appear to be very sound in theory, and in two out of three cases where it has been performed by me it has been unsuccessful in relieving pain. Therefore it was decided if possible to insert from the front a graft through the body of the fifth lumbar vertebra and the fifth intervertebral disc into the sacrum. This was seen to be possible in three cadavra investigated before operation was attempted.

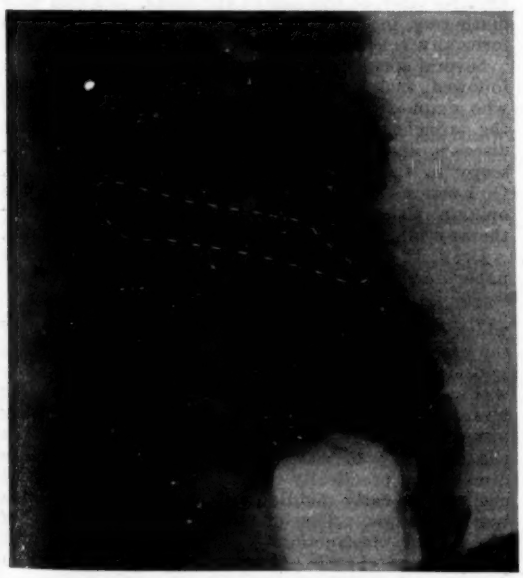


FIG. 1.—Radiogram showing the graft (outlined by dotted line) in position.

FIG. 2.—Diagrammatic drawing to illustrate the operation. (Drawn by Miss W. M. Barclay-Smith.)

The patient, a boy aged 14, had had pain in the small of the back and in the calves after jumping from a height three months previously. Radiography showed that there was a fracture in the laminæ of the fifth lumbar vertebra between the roots of the upper and lower articular processes, and that the body of the fifth lumbar vertebra had slipped forwards, as can be seen in Fig. 1. The displacement is not so great in this picture as in the one previous to operation. It is possible that the hammering-in of the graft may have helped to reduce the deformity to some extent.

A plaster bed having been made previously, the operation was performed on March 20th. The patient was placed in the Trendelenburg position, and the abdomen was opened by a left paramedian incision. The intestines were packed off and an incision was made through the posterior parietal peritoneum, as is shown in Fig. 2. The anterior aspect of the fifth lumbar vertebra was cleared by blunt dissection, the left common iliac vein was gently retracted upwards and carefully guarded. A hole was drilled almost vertically downwards with a large drill. A graft was then taken from the tibia and driven home with a punch. The posterior peritoneum was then sutured and the abdomen closed.

Fig. 1 shows the position of the graft. The convalescence was uneventful. The boy was allowed to walk two months after the operation and had no pain. It is possible that the intervertebral disc is not the ideal situation for a graft, in that the graft might become absorbed, but X rays show that this is not the case after seven weeks. Should it become absorbed later, a steel pin could be used instead in subsequent cases.

AGRANULOCYTIC ANGINA WITH SEPTICÆMIA

By G. S. Erwin, M.B. N.Z.

RESIDENT MEDICAL OFFICER, ANCOATS HOSPITAL, MANCHESTER

Although agranulocytic angina has been commonly reported abroad, only a few cases have been so far reported in this country. They are characterised by a poverty of granular leucocytes—or even their complete absence—and by sepsis without tissue response in all those places where bacteria normally abound. An adequate review of the subject has recently been undertaken by Lescher and Hubble, so that no further details need be given here.

The patient, a married woman aged 28, was admitted to hospital with a temperature of 103° F. and a history of fatigue, sore-throat, and sore tongue for two weeks. She was extremely ill, presenting sores in the nostrils, on one eyelid, and a raised ulcer with sloughy base on the fore part of the tongue. The tonsils were large and œdematous, and there was a bilateral cervical adenitis, though there were no glands palpable in the body elsewhere. In addition, the patient suffered from a marked diarrhœa of recent origin.

Bacteriological investigation yielded staphylococci and streptococci from tonsils, nose, and tongue, the latter also showing tubercle bacilli. The urine contained *Staphylococcus aureus* but no tubercle bacilli, these being absent also from the fæces. The finding of tubercle bacilli, together with a suspicious chest radiogram and a history of operation for fistula-in-ano four months previously, gave countenance to a diagnosis of miliary tuberculosis, which was not revised until the following report on the blood was received: erythrocytes 3,400,000, hæmoglobin 55 per cent., colour-index 0·8, leucocytes 12,200; the differential count showed 2 per cent. mononuclears and 98 per cent. lymphocytes, no granular forms being seen. Blood culture showed Friedländer's pneumobacillus.

The patient developed signs of meningitis and died in coma five days after admission. An autopsy not being available, lumbar puncture was performed 24 hours later, the fluid showing an organism similar to that in the blood, but which would not grow on culture, presumably being dead.

This case presents an unusual feature in the misleading presence of tubercle bacilli in the lingual ulcer and in the zone of inflammation around it. Although it is not customary to find a leucocytic response, the presence of tubercle bacilli would undoubtedly call forth a lymphocytic barrier in the tissues. The same pathology would probably account for the cervical adenitis, adenitis of any sort being a remarkably rare feature of this disease. Another unusual complication exhibited by this case was the septicæmia with its attendant meningitis.

Some doubt exists as to whether agranulocytic angina is a *morbus sui generis*, but the present tendency is to regard it as a bone-marrow deficiency of unknown origin, but which, in persons predisposed, may be precipitated by sepsis. The case here described unfortunately throws no further light on the causal factor, since only the one blood count was available.

I am indebted to Dr. G. J. Langley for permission to publish this case.

MEDICAL SOCIETIES

OTOLARYNGOLOGY AT EDINBURGH

SUMMER MEETING

The summer meeting of the sections of laryngology and otology of the Royal Society of Medicine was held in association with the Scottish Otological and Laryngological Society at Edinburgh on June 2nd and 3rd. Dr. A. Logan Turner (Edinburgh) presided on the morning of June 2nd.

Mr. F. C. Ormerod (London) read a paper on the pathology and treatment of

MALIGNANT GROWTHS OF THE BRONCHI

He said that carcinoma of the lung arises from the bronchial mucous membrane. It presents many forms, varying from squamous-celled carcinoma, with great numbers of cell-nests and keratinisation, to undifferentiated masses of small ovoid cells which used to be called oat-celled sarcoma of the mediastinum. Normal bronchial mucosa consists of a layer of ciliated columnar epithelium with a layer of small ovoid cells below. Metaplastic changes might take place in these layers and occasionally squamous epithelium might be produced, especially after chronic inflammation. Mr. Ormerod suggested that all the various types of carcinoma arise from deeper layers of small cells. He said that metastases were common in mediastinal glands and might spread to the opposite lung, invading the bronchi, and to the œsophagus; occasionally the opposite lung was affected through inhalation of malignant tissue. There might be secondary deposits in almost any organ. Degeneration and cavity formation were more common in squamous-celled carcinoma, which tend to occur in older people. The treatment advised was removal of intrabronchial growth when possible. Lobectomy was followed by success in suitable cases. Radium could be inserted through the bronchoscope or by thoracotomy; radon seeds, generally employed by Mr. Ormerod, were usually applied in a special container in the bronchus. Distance radiation by X rays or radium bomb he had found disappointing. Portions of growth removed at intervals after radiation show progressive degenerative changes in malignant cells. The great advantage of the use of radon rather than radium element was comparative unimportance of the loss of the seeds. He had used diathermy in some cases, but it was too early to form any conclusions regarding its value.

Several speakers took part in the discussion which followed, including Sir StClair Thomson (London), who emphasised the importance of the inclusion of the bronchoscopist in any clinic dealing with chest diseases, and also the desirability of retaining endoscopy in the hands of the laryngologist; and Dr. G. Ewart Martin (Edinburgh), who expressed the opinion that failing radical surgery deep X ray therapy offered the most hopeful line of treatment.

Dr. J. P. Stewart (Edinburgh) then presented a paper on

LETHAL GRANULOMATOUS ULCERATION OF THE NOSE

which consisted of a careful analysis of a series of ten cases collected from literature and locally, which appeared to fall into this category. The condition was very rare, but when it did occur its character was so obvious that there was little fear of its passing unrecognised. It could then be safely assumed that the majority of cases had been recorded. The disease was practically confined to the male sex, and occurred in early middle age. Its pathological basis was unknown. The clinical picture was one of progressive destruction of the nose, face, and pharynx—a chronic inflammatory process. The duration of the illness was from one to two years, during which prolonged and hectic fever and frequent

and severe hæmorrhages occurred. The most marked feature of the disease was the complete absence of resistance of the patient to the infection, the fatal issue being due to sapræmic cachexia and repeated hæmorrhages. In six out of the seven cases when bacteriological findings were given the presence of a streptococcus in combination with a staphylococcus were reported. As regards treatment, local applications proved unavailing. Deep X ray therapy deserves further trial.

Dr. I. SIMSON HALL (Edinburgh) described a somewhat similar case of a

MALIGNANT GRANULOMA OF THE HARD PALATE

occurring in a woman. The patient was a young married woman, with healthy children. The disease began as a nodule which ulcerated and quickly perforated the hard palate. The diagnosis was successively syphilis, tuberculosis, and malignant disease, but no evidence was obtained of these. The patient's general condition was good for a considerable period, and there were no glandular enlargements, but later there was a swinging temperature, and apparently miliary spread took place and the patient died after a period of semicoma. Post mortem there was secondary involvement of kidneys, liver, lung, and base of skull. The histological diagnosis was difficult; the tissue was apparently malignant, but not carcinoma and not sarcoma. The prevailing type of cell appeared to be primitive. The nodules showed unusual features linking them to inflammatory lesions as well as to neoplasms. Mr. Simson Hall expressed the opinion that the ulcer condition was probably of infectious origin, but on spread through the tissues produced a condition indistinguishable from neoplasm. In the discussion which followed, Dr. LOGAN TURNER was able to supplement the account of McBride's case, reported in 1896, with some personal recollections.

Mr. J. P. MONKHOUSE (London) described seven cases of

PARTIAL THORACIC STOMACH

of mild degree, with X ray photographs. He divided the cases into two groups, those having dysphagia and those without; the dysphagia which was due to the presence of an ulcerated stricture was not progressive as in carcinoma. Both groups had pain resembling the flatulent dyspepsia of cholecystitis. Diagnosis rested on X ray and endoscopic examination. Dr. E. MUSGRAVE WOODMAN (London) spoke of his experience of such cases, and Dr. A. BROWN KELLY (Glasgow) showed several slides illustrating his cases.

On June 3rd, Mr. J. F. O'MALLEY (London) presiding, Dr. DAN MCKENZIE (London) read a paper on

ERYSIPELAS IN RELATION TO OTOLARYNGOLOGY

Dealing with the bacteriology, he suggested that the *Streptococcus hæmolyticus* was capable of producing many conditions of varying severity. He urged the need for the notification of streptococcal diseases. Erysipelas was quite a common sequel to mastoid operations and a special technique was advocated.

Dr. A. DE KLEIJN read a joint paper by Dr. J. LE HEASE and himself on Disturbances of the Movements of the Alimentary Canal after unilateral labyrinth-extirpation in cats.

Dr. H. ROSS SOUPER (Aberdeen) communicated a paper on Tuberculous Mastoiditis in children.

Clinical Cases

In the afternoon of June 2nd clinical cases were examined, and after tea a discussion was held on the cases demonstrated, Dr. G. B. BRAND (Glasgow) being in the chair. Among cases of special interest was a group of four cases of sixth nerve paralysis, complicating mastoiditis, two shown by Mr. DOUGLAS GUTHRIE (Edinburgh) and Dr. SIMSON HALL exhibiting optic neuritis following jugular ligation. These cases gave rise to a discussion on ætiology. Mr. WOODMAN was of the opinion that a slow form of basal meningitis could explain the symptoms, while Dr. ROSS SOUPER gave clear reasons for his belief that the explanation was mechanical. Dr. HALL supported Dr. Souper, suggesting internal hydrocephalus, following jugular occlusion as the most likely course of events.

Dr. J. S. FRASER (Edinburgh) reported nine consecutive cases of intrinsic cancer of the larynx treated by the radium fenestration method. Sir STCLAIR THOMSON congratulated Dr. Fraser on the series of cases which he was showing. He was of the opinion that Dr. Fraser could have claimed greater success than he had done, but while admitting the superiority of the radium method, where successful, as far as function was concerned, he adhered to his opinion that laryngo-fissure was the more reliable operation. One of the outstanding advantages of the open operation was, he believed, the fuller opportunity for examination of the lesion. Mr. LIONEL COLLEDGE (London) gave an analysis of his own series of cases.

A series of cases illustrating types of tuberculous affections of nose, pharynx, and larynx were shown by Dr. G. E. MARTIN (Edinburgh) and Dr. SIMSON HALL.

Dr. M. J. GIBSON and Dr. G. L. MONTGOMERY (Dundee) gave an account of a case of chloroma simulating mastoiditis, with a résumé of the literature relevant to the subject.

Mr. M. E. VLASTO (London) followed with some observations on the radiographic diagnosis in a case of mastoiditis, due to infection by pneumococcus mucosus. The differences between the normal and diseased sides was demonstrated, and Mr. Vlasto was of the opinion that real help could be obtained in such cases.

Mr. T. B. LAYTON (London) took part in the discussion, and Mr. G. W. CARTER (London) showed some films to illustrate how radiography could aid diagnosis. Dr. FRASER said that he had not derived any real assistance from radiography. The discussion, drifted towards the subject of early or late operation in mastoiditis, until Dr. Fraser terminated it by quoting Alexander of Vienna to the effect that he operated neither early nor late, but at the right time.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION

AT a meeting held on May 23rd, Prof. M. LUCAS KEENE presiding, a paper was read by Miss MARGARET BASDEN on

Toxæmias of Pregnancy

She proposed to discuss only late pregnancy toxæmias —viz., toxic albuminuria and eclampsia. Following Dr. James Young's classification, she included all cases of albuminuria occurring in late pregnancy, and drew attention to Dr. Young's view that nearly every case of chronic nephritis met with in pregnancy owed its origin to toxæmia originating in a previous pregnancy. The cause of toxæmia of pregnancy was still

unknown, but certain facts were established: that the "cause of toxæmia of pregnancy was pregnancy" (G. F. Gibberd); that the organs chiefly involved were the liver and kidneys; and that the latter might be permanently affected. Miss Basden gave some statistics for the years 1931 and 1932 from the Mothers' Hospital, Clapton. Out of a total of 3008 deliveries during this period, there were 239 cases of albuminuria excluding eclampsia (7·9 per cent.). Fifteen per cent. of the patients gave a previous history of scarlet fever or diphtheria, but since many case-sheets had no reference to past history the proportion of previous infective disease was probably higher. No less than 73 per cent. of the cases did not show symptoms till the 34th week or later; but it was possible that the infective disease had caused an occult nephritis. The combined fœtal and neonatal mortality in all cases was 4·5 per cent., and in the albuminuria cases 10 per cent. High blood pressure in the mother appeared to play the most important part in causing fœtal deaths—a blood pressure of 150 or over was present in 64 per cent. of the cases, and of 170 or over in 44 per cent. Prolonged toxæmia was less important as a cause of fœtal death, and was present in less than 25 per cent.

The supervention of eclampsia, Miss Basden said, was no longer looked upon as the only real danger to the mother connected with toxic albuminurias, for the work of Gibberd and others had shown that the albuminuria recurred as such in subsequent pregnancies in 50 per cent. of cases, while in 10 per cent. of cases it recurred as chronic nephritis. The risks both of recurrent albuminuria and of chronic nephritis were greatly increased when the toxæmia was allowed to continue for more than three weeks. The diagnosis of toxic albuminuria was simple, and the obstetrician should be prepared to make and act upon it without risking dangerous delay by depending on extraneous aids. The two cardinal symptoms were albuminuria and high blood pressure, of which the latter was the more important. De Lee stated that a blood pressure of 130 should be looked on as a warning to greater vigilance, while the limit of safety might be put at 140. This might seem unduly cautious, but the blood pressure of a healthy pregnant woman tended to be low; and 105–110 was not an uncommon reading.

The treatment was concerned with two main objects: (1) to prevent the patient from getting worse (for the hope of curing her before delivery was but slight); and (2) to do what was possible to prevent permanent damage to the kidneys. The urine and blood pressure should, if possible, be examined daily, but in hospital practice twice weekly sufficed for mild cases; the more serious ones should be admitted. The medical treatment was practically that of nephritis, except that milk was restricted or withheld. It varied in strictness according to the severity of the case, the worst cases being kept in bed on water, or water and glucose, only. The best means at present known of preventing permanent renal damage was the timely termination of a toxic pregnancy. It was hardly ever justifiable to allow the toxæmia to continue for more than three weeks, and toxæmia appearing at or continuing till full term should be looked upon as an indication for inducing labour at once. Fortunately this seldom meant sacrificing the child. The Mothers' Hospital statistics for 1931 and 1932 showed that more than 75 per cent. of all cases of albuminuria did not show symptoms till the 34th week or later. It was therefore seldom necessary to induce labour before the 36th week, and a child born at 36 weeks had almost as good a chance of survival as one at full term, and a much better one than if it had to exist for weeks in the uterus of a toxæmic mother. The best and quickest method of induction was by rupture of the membranes as described by Dr. Gibbon FitzGibbon, and in practice its numerous theoretical disadvantages were found to be non-existent. The treatment of severe recurrent toxæmia, and of chronic nephritis, from which it might not be distinguishable, should be by Cæsarean section and sterilisation.

Miss Basden showed a chart giving details of the seven eclampsia cases occurring in the years under review, constituting 1 in 427 of all deliveries, and about 3 per cent. of the albuminuria cases. There was one maternal death among them. None of the cases had symptoms suggesting the onset of eclampsia until the day on which the fits occurred, and even then subjective symptoms were only present in three cases—viz., headache and loss of vision in one case, and headache alone and vomiting alone in the two others. In three cases the blood pressure remained below 140, and the highest blood pressure noted was 190. The prophylactic treatment of eclampsia was far more important than that of the developed condition, which was medical, not surgical. The transition between a severe case of pre-eclamptic toxæmia and eclampsia was often so insidious that prompt Cæsarean section was indicated as soon as this stage was reached. The recognition of this very severe type of toxæmia depended on its response to medical treatment. No single sign or symptom-complex could be relied on as a guide. Most patients showed a distinct improvement after treatment in bed for 24 hours on glucose and water only. Should this improvement not occur, labour should be induced at once; but should the condition be worse Cæsarean section should be performed. Occasionally, even this 24 hours' delay proved dangerous. The symptoms indicating immediate operation would be such a combination as severe headache, high blood pressure, much albuminuria, and dimness of vision; a less obvious indication would be recurrence of severe symptoms after temporary improvement. Miss Basden referred to her recent report of 30 cases of pre-eclamptic toxæmia treated by Cæsarean section with no maternal mortality and no subsequent development of eclampsia. She had since added three cases to the series, which included three cases of sterilisation for severe recurrent toxæmia. She would not suggest that without operation all these cases would have developed eclampsia, but she was convinced that some would have done. Patients with profound toxæmia did not stand the operation badly; and they were not therefore being asked to undergo an undue risk.

A REST AND TRAINING CENTRE FOR WOMEN.—Burnham Hall, Norfolk, which has been presented to the British Legion, is a three-story mansion built about 1760, standing in five acres of ground. It has been adapted as a centre for rest, combined with training, for women. There is accommodation for a staff and 43 residents, and it is equipped for training in domestic work, simple upholstery, elementary home nursing, and poultry keeping. The length of stay will be of varying periods up to six months, and the training will be in domestic subjects intended for those who, approaching middle-age, have to earn their own living, or have to make a change to domestic work, and take up new appointments as housekeepers or home helps. The house is now ready for occupation, and application forms may be had from the organising secretary, Women's Section, British Legion, Haig House, 26, Eccleston-square, London, S.W.1.

REVIEWS AND NOTICES OF BOOKS

Endocrine Medicine

By WILLIAM ENGELBACH, M.D., F.A.C.P., B.S., M.S., D.Sc., Professor of Clinical Medicine, St. Louis University School of Medicine, 1911–24. London: Baillière, Tindall and Cox. 1933. Pp., Vol. I., 460; Vol. II., 473; Vol. III., 862; Index, 117. £10.

THE three volumes deal with endocrine diseases, excepting disturbances of the suprarenal glands, pancreas, and liver. It is hinted in the preface that a fourth volume is in preparation. The first of those which have appeared deals with the historical and pathological side of endocrinology, and gives an indication of the extraordinarily elaborate methods of examination employed by Prof. Engelbach. The other volumes deal with endocrine disturbances according to the age of onset: Vol. II. those which appear in infancy and childhood, and Vol. III. those which affect adults. To anyone accustomed to the more usual classification, in which disturbances of any particular gland are dealt with as a whole, this arrangement may be confusing, but it has the advantage that methods of examination employed vary somewhat according to the age of the patient, and the findings, therefore, can be more easily compared.

The modern tendency to try to explain every deviation from the average in stature, proportion, and mental characteristics in terms of endocrine disturbance receives support from Prof. Engelbach, who makes a complex and dogmatic classification of a wide range of abnormalities. It is doubtful whether this is justifiable in the present state of our knowledge. The diagnoses in a large number of cases appear to have been pure expressions of personal opinion, unsupported by post-mortem findings, and the results of therapy based on them to have been uniformly disappointing, except where a well-recognised type of thyroid deficiency responded to specific therapy. Such a diagnosis as (1) suprarenal cortex disorder—suspected adenoma; (2) status lymphaticus—suspected thymus enlargement; (3) thyropituitarism; thyroid deficiency with adiposogenital pituitarism can hardly be accounted other than speculative, for no necropsy was obtained. In any event it is so all-embracing as to be of no practical value; and yet the case is here classified as, and is intended to illustrate, disorder of the thymus gland. Again, it is not easy to make out on what basis a distinction is drawn between thyropituitarism and pituitarothyroidism. Full case-notes are given to illustrate these and other disorders; but the logic of the grouping is obscure and lacks pathological support. Even the well-recognised endocrine syndromes are so subdivided in detailed classification as almost to lose their identity.

Prof. Engelbach's style is involved, and his use of hybrid terms is rather confusing. Indeed, the work owes its chief value to the large number of detailed case-notes and profusion of excellent photographs. These might well provide material for a more systematic classification on a firm pathological basis. From this point of view the work should appeal to specialists in the branch of medicine with which it deals. It is most interesting as an illustration of the lines of thought of an enthusiast in endocrinology.

Clinical Disorders of the Heart Beat

Seventh edition. By Sir THOMAS LEWIS, C.B.E., F.R.S., M.D., D.Sc., LL.D., F.R.C.P., Physician in charge of Department of Clinical Research, University College Hospital, London. London: Shaw and Sons. 1933. Pp. 127. 6*s*. 6*d*.

THIS little book needs no introduction; it is already familiar to a large number of people. That its value and usefulness is fully appreciated is evidenced by the fact that in so short a time it has reached its seventh edition. No important changes have been made in the text of this edition and the subject matter remains the same. To those who are not familiar with this book we may say that its object is to recount such symptoms and signs as have been found useful in identifying the more common important disorders of the heart beat without having recourse to complex graphic methods. It is therefore of particular value to the practitioner. The disorders considered are sinus irregularities, heart-block, premature contractions, simple paroxysmal tachycardia, auricular flutter, auricular fibrillation, and alternation of the heart. In each case the meaning of the irregularity is shortly and clearly defined, its nature together with ætiology and pathology is discussed, and methods of recognising it are given; a final paragraph assesses significance and prognosis and describes appropriate treatment, where this is necessary, by diagrams and tracings. The text is illustrated. The book is written with economy of detail and the presentation is clear; its popularity is well deserved.

Internal Derangements of the Knee-joints

Their Pathology and Treatment by Modern Methods. Second edition. By A. G. TIMBRELL FISHER, M.C., M.B., Ch.B., F.R.C.S., formerly Hunterian Professor, Royal College of Surgeons of England. London: H. K. Lewis and Co., Ltd. 1933. Pp. 205. 15*s*.

A GOOD deal of this book has been rewritten in the second edition, and a considerable amount of hitherto unpublished matter has been included. More than half of the book, as might be expected, deals with lesions of the semilunar cartilages. This section is enriched by the inclusion of the results of a clinical research into the after-history of the author's operation cases, and of a careful analysis of the symptoms of these lesions both at the time of an acute injury and in cases of repeated traumata. The reader of this book cannot fail to gain a clear understanding of the relation of the pathology to the symptoms in the various types of derangement of the knee-joint and will learn to appreciate the underlying causes of difficulties which arise in practice. Practitioners are often puzzled by the fact that locking of the joint sometimes occurs when a semilunar cartilage is first torn, and sometimes not until a subsequent (often minor) trauma has occurred, while in other cases locking never occurs. This apparent paradox is here explained. Other practical points which Mr. Fisher discusses are: when and how adhesions of the knee-joint should be broken down; the relationship between chronic arthritis and internal derangement and the choice of the case of chronic arthritis in which operative interference is justified; and the differential diagnosis between traumata of the semilunar extensions

of the infrapatella pad of fat and of lesions of the semilunar cartilages themselves. His patellar-displacing operation for exposure of the interior of the knee-joint is described in detail.

The pathology of loose bodies has been the subject of close research by Mr. Fisher. Their ætiology is bound up with the general relations of tissues of mesoblastic origin. Mr. Fisher holds that connective tissue—viz., the synovial membrane—can produce either cartilage or bone, depending on its environment; in other words, the connective tissue cell can act either as a chondroblast or as an osteoblast. In an appendix to the volume are included notes written by Sir Robert Jones, in the form of a kind of running commentary on the text. The illustrations are profuse and leave nothing to be desired.

Obstetrics and Gynæcology

Practical Medicine Series. By J. B. DELEE, A.M., M.D., and J. P. GREENHILL, B.S., M.D. Chicago: The Year Book Publishers Inc. Series 1932. Pp. 679. $2.50.

THIS volume consists of a series of excellent abstracts, with appropriate comments, of most of the important papers published in America and in Germany in the year 1932. The same attention has hardly been paid to contributions from this country. The comments of Prof. Delee are vigorous and stimulating; a remark such as "there is nothing wrong with Potter's versions except the indications, and these are 99 per cent. wrong" is typical. An interesting feature which emerges from this 1932 series is the incidence and mortality of Cæsarean section in various parts of the world. For example, Preissecker found the incidence of Cæsarean section to be 3·08 per cent. in a review of 205,099 labours. Skeel and Jordan, reviewing 45,650 deliveries, found that 1047, or 2·29 per cent., were Cæsarean sections, and similar high incidences are reported from other parts of America. The mortality-rate given is high; 5·7 per cent. in Vienna, 3·44 per cent. in Detroit, and 7·6 per cent. in Cleveland with the classical operation and 2·8 per cent. with the lower segment operation. The summary of these papers on Cæsarean section is worthy of very careful attention. In the gynæcological section a large number of papers on the therapeutic effects of ovarian and pituitary hormones are epitomised, and as in the previous volume, endometriosis is considered at some length.

Radioactivity and Radioactive Substances

Third edition. By J. CHADWICK, M.Sc., Ph.D. London: Sir Isaac Pitman and Sons, Ltd. Pp. 116. 2s. 6d.

THE third edition of Dr. Chadwick's book is welcome, for it takes the reader an appreciable step further than that of ten years ago. The two most notable inclusions in this edition are experimental data with reference to the proton and a physical explanation of the exponential law of radio-active transformations. It has been a standing riddle for about 30 years how it is that all the radio-active bodies upon which measurements of accuracy have been made decline in their natural activity in the course of time according to the same law, which has applications in many other fields. The explanation of Dr. Chadwick is one in which it is admittedly a little difficult to see the operation of the full physical process, for it is bound up with the modern conceptions of atomic structure. The alpha particle is known to come from the inner structure of the atom. If it is going to get out it has to pass what is called a potential barrier, and on the new quantum mechanics an electrified particle always possesses a finite chance of passing from one state to another of the same energy even if the two states be separated by a potential wall of finite magnitude. Now, the alpha particle, in escaping from the interior of the atom, has to get through this potential wall, and the difficulty in the conception is that in crossing the barrier its kinetic energy would be negative. This is not easy to accept for those brought up on the physical doctrines which are now undergoing rapid change, but we have no doubt that it will present few difficulties to those to whom modern quantum mechanics has now become a familiar implement of research. Dr. Chadwick is perhaps unduly confident of the correctness of his explanation; he states boldly that there can be no doubt that this picture of the radio-active nucleus is correct in its general form. There are other ways of thinking of the emission of alpha particles than that which he describes. Since this sentence was written, however, Dr. Chadwick has himself been instrumental in demonstrating the existence of an entirely new particle, the neutron; and if the neutron is going to be fitted into his picture of the radio-active nucleus, it will certainly make a disturbance on its introduction. In no other respect have we anything but praise for this excellent little primer.

Milchkunde

Second enlarged edition. By M. KLIMMER, Dr. med., vet. et phil., Director of the Veterinary Institute, University of Leipzig. Berlin: Richard Schoetz. 1932. Pp. 212. M.10.60.

THIS useful little book is written by a veterinarian primarily for the use of veterinarians, but it may be read with profit by all who are interested in milk control. In the preface to the first edition the author states that he set himself to answer the question "What ought the practical veterinary surgeon to know of practical milk control?" It seems from the wide field covered by the book that he ought to know a great deal.

The first section deals with payment for milk according to quality, and various methods of estimating quality are set out together with a scale of additions to, or reductions from, the basic price. The next two sections briefly discuss the general properties and chemical composition of milk; chemical, bacteriological, or physiological explanations are given for abnormalities. The greater part of the book is, however, given over to the study of milk hygiene, leading up to methods of control and legislation. The importance of sound, healthy cows is stressed, and diseases of cattle, notably tuberculosis, contagious abortion, and mastitis, are discussed at some length. The care of the cow, the fundamental principles underlying clean milk production, and the methods of handling milk at the farm and at the factory are dealt with in sufficient detail to provide a useful introduction to this phase of the subject. Methods of sampling and testing the milk for purposes of control include a brief description of the chemical and bacteriological tests in general use in most countries. The book is interspersed with references to German legislation, and the final section deals with this subject in detail.

This book is written from the German point of view and forms a handy book of reference for workers in any country who wish for an introduction to the study of milk problems.

THE LANCET

LONDON: SATURDAY, JUNE 10, 1933

HOSPITALISATION OF SCARLET FEVER

SOME six years ago the Ministry of Health issued a report,[1] prepared by Dr. A. C. PARSONS, upon current English public health practice in the control and treatment of scarlet fever. The diversity of opinions and practice of the local medical officers of health who supplied the materials for the report was perhaps a measure of the complexity of the problems considered. Miss HILDA M. WOODS, who, in conjunction with Prof. MAJOR GREENWOOD, was responsible for the statistical analyses in that report, has now carried out an epidemiological study of scarlet fever in England and Wales since 1900,[2] the publication of which is particularly opportune at the present time. The history of scarlet fever in England shows that phases of great clinical severity have alternated with those during which the disease was predominantly mild, the change in type occurring comparatively abruptly. In the nineteenth century Miss WOODS finds that the peak of mortality was reached in 1863, when the death-rate upon children under 15 years of age reached 3966 per million. The disease was still a serious cause of child mortality up to 1880, when some change occurred and mortality definitely declined, and has continued to decline until in the quinquennium 1926–30 the death-rate among children under 15 was only 55 per million. An analysis of the secular trend suggests that it has reached its lowest level, which may be merely the trough of a wave; it is noteworthy that in Eastern Europe at the present time scarlet fever is a severe disease.

Miss WOODS examines from the statistical point of view the various factors which are believed by some, but not by all, to have contributed to the fall in mortality. Although the trend of mortality has been progressively downwards, it has not been uniform throughout the country. Mortality amongst children under 15 years of age has differed considerably during the last few years in certain of the great cities examined. Since 1913 Birmingham has shown, relatively, the greatest improvement in the death-rate. In 1929 the death-rate there was less than half that recorded in London and Manchester and one-sixth of that in Liverpool. On the other hand, in the pre-war period 1901–13, relatively, the greatest improvement in mortality occurred in Liverpool. The remarkable decline in mortality from scarlet fever during the last 30 years has not been accompanied by any general decrease in prevalence, although this, too, is subject to geographical variation. During the years 1926–30 the disease was most prevalent in the north-eastern and western counties. The incidence in London and Essex was high. The considerable interlocal differences in the age-incidence of the disease makes it impossible to say at which age the maximum attack-rate occurs generally, but in London (1930–31) and Manchester (1896–1929) the maximum incidence fell upon the 5-year-old child, coinciding with the age of compulsory school attendance. The influence of overcrowding upon the spread of the disease is by no means constant. In London this factor appears to operate; in Birmingham the greatest incidence is upon the better artisan homes; in Glasgow the greater the overcrowding the smaller the attack-rate. In London, again, wet years are associated with low prevalence, but this is not the case in the other three great English cities investigated. Seasonal incidence now falls chiefly upon the late autumn and winter. The disease is less prevalent in the spring and summer months than was formerly the case.

These findings are of great interest and may well form starting-points for further investigations by the field epidemiologist and by the immunologist. From the point of view of the public health administrator, however, the conclusion of outstanding importance drawn by Miss WOODS from her analysis is that during the period studied no evidence has been found to prove that hospital isolation has been effective in reducing the prevalence or mortality from scarlet fever. In the Ministry of Health report, quoted above, the opinion was expressed that never was there less epidemiological evidence or less clinical necessity for the hospital isolation of scarlet fever than at that time, and yet, it was observed, the general hospital isolating-rate for the country as a whole had never previously been so high. When fever hospitals were established their primary function was the isolation of patients suffering from acute infectious diseases with a view to limiting spread of infection. In the early days, when more virulent types of infection were abroad, hospitalisation may well have been effective in endemic diseases in general and scarlet fever in particular, but nowadays it evidently has little success in restricting the number of cases. The abortive case, the missed case, and the carrier make isolation of the clinically recognisable cases, which form the minority of the sources of infection, ineffective in staying spread of infection and so lessening prevalence. In so far as they are properly equipped and staffed for the purpose—and there are still many very small institutions which are neither—isolation hospitals provide valuable and, indeed, essential facilities for patients suffering from the acute specific infections; but

[1] Min. of Health Reps. upon Pub. Health and Med. Subj., 1927, No. 35.
[2] Med. Research. Counc. Spec. Rep. Series, No. 180, 1933. London: H.M. Stationery Office. 1s. 3d.

since these facilities are provided at the public charge, it is essential that they should not be abused. The available accommodation should not be usurped by patients who could be as effectively treated at home to the exclusion of others whose condition demands the resources of a hospital. This is precisely what is now happening with scarlet fever. With few exceptions, such as children housed over milk shops, there is no justification for the removal, on the score of prevention, of cases of scarlet fever to hospital; nor are there, as a rule, valid clinical reasons for their removal, especially since scarlet fever antitoxin is available either for treatment or prophylaxis in the home. How then does it come about that the hospital isolation-rate in most localities, but not all, remains so high? The Ministry of Health report[1] supplies the answer. It is there stated (p. 222) that a large percentage of scarlet fever patients are sent to hospital neither primarily in the interests of the public health, nor, in many cases, particularly in the clinical interests of the patient, but largely on social or compassionate grounds. The importance of this statement has since been enhanced by the passing of the Local Government Act, 1929, and by the economic situation. The Act, by transferring to public health authorities responsibility for the care of sick persons hitherto undertaken by the boards of guardians, made it necessary to provide for the accommodation of patients suffering from non-notifiable infections. The general result has been an increased demand upon the accommodation of isolation hospitals, which now receive much larger numbers of patients suffering from non-notifiable infections such as measles and whooping-cough. This would be all to the good, were the available accommodation of isolation hospitals not limited. Local authorities cannot extend it by increasing the numbers of beds in each ward, a practice which ends in disaster, nor, in these hard times, by building more wards. There must be therefore discrimination in the types and numbers of diseases admitted. Mild diseases must give place to those more serious; and amongst the mildest at the present time is the once dreaded scarlet fever.

SOCIALISATION OF THE MENTALLY DEFECTIVE

THE idiot and the imbecile have always been a recognised part of the community; they could not be overlooked, and were in former times regarded as harmless. Only when the pace of civilisation became more swift was the feeble-minded group discovered: a collection of people unable to cope with the social responsibilities of modern life. Soon after they were recognised they began to cause alarm, and for a time they seemed to be held responsible for all the evils of the world: poverty, criminality, illegitimacy, prostitution, and alcoholism; moreover, they were said to be increasing rapidly. The remedy widely put forward was their permanent segregation, but fairly soon it became obvious that segregation was impracticable and the cry of sterilisation was raised; its supporters felt that if we could not prevent the other evils due to this large body of feeble-minded people, we could at least prevent an increase in their numbers. This feeling has actuated the drastic German proposal on which Dr. C. P. BLACKER comments (p. 1265).

Dr. HENRY HERD, in a recent address to the North Lancashire Association for Mental Welfare, supported yet a third method of dealing with them—viz., socialisation. He pointed out that intelligence tests had shown the feeble-minded to be no abnormal alien, but only an incompletely developed normal human being, separated by the narrowest interval from the low normal. The intelligence quotient of any human being varies little throughout school life; intelligence is mainly an inherited and fixed quality. Character, on the other hand, can be moulded. The mentally defective, like everyone else, is—Dr. HERD maintains—made up of intelligence and character; the intelligence is much below normal, and must be trained within its limits, but the character qualities are more pliable, and many of the apparent abnormalities and undesirable traits noted in defectives are due to lack of control and the failure to develop the higher sentiments which normally control instinctive tendencies. The suggestibility of the defective is often his curse, but may be his salvation. There is, therefore, an excellent prospect for socialisation on the character side, and effort is concentrated on those elements of personality which are not fixed but can be improved by proper training. There is, Dr. HERD says, no one line of treatment which can be applied to all defectives. Most of them are capable of some degree of socialisation, and each individual must be trained along the lines which his make-up demands; very few need permanent care in institutions.

Socialisation can, he thinks, be carried out in special schools and training centres as well as in clinics. The report of the Birmingham education committee for last year shows that 40 per cent. of the boys and 30 per cent. of the girls trained in special schools were doing remunerative work. The age of adolescence is an age of danger, and in this period instructional training is, Dr. HERD says, very desirable; the object of the colony is to act as a stepping-stone between the training institution and parole or licence. The colony gives a moderate amount of liberty and yet combines with it some shelter. The institution for the mentally defective should, in the words of the Wood report, be "no longer a stagnant pool, but should become a flowing lake, always taking in and always sending out." As long as adequate institutional provision is not available, supervision must be regarded as a most important feature in the treatment of defectives; it is likely to play a large part for several years to come. There is evidence, Dr. HERD said finally, that the mentally defective will repay efforts to socialise him; he has been unjustly maligned in the past, and the mood of pessimism has too long haunted our thoughts of him. Without desiring to minimise the seriousness of the problem, Dr. HERD declared that this is no hopeless task, but one that should be approached with faith, hope, and courage.

ROAD INJURIES: LORD MOYNIHAN'S BILL

THE House of Lords continues to provide an admirable forum for the introduction of measures which the jealous programmes of party politics might otherwise exclude from discussion. Lord MOYNIHAN'S Road Traffic (Emergency Treatment) Bill, reprinted in another column, invites the public to remedy the unfairness by which at present the hospitals and the medical profession are expected to furnish gratuitous services to persons injured by traffic accidents. Many of such persons are perfectly well able to pay for the hospital accommodation or the medical and surgical treatment which as traffic casualties they receive. A professional or business man who thus obtains something for nothing would usually be startled if he himself was expected to be a daily benefactor of all and sundry in the course of his profession or business. One of the many unsatisfactory consequences of Section 36 of the Road Traffic Act is that it has given people an idea that the system of compulsory insurance against third party risks has provided reasonable recompense to the hospitals and the doctors for their remedial services towards the victims of the road. As has more than once been explained in THE LANCET, this impression is far from correct. It is indeed surprising that the public conscience is so lax in tolerating the present injustice. Even Lord MOYNIHAN'S Bill may not go far enough. Its method of recovering expenses (by applying to the owners of motor vehicles involved in traffic accidents) will fail if, as occasionally happens neither the patient who is admitted to the hospital ward nor anybody else can tell the hospital the number of the vehicle which knocked him down.

Section 36 of the Road Traffic Act was admittedly experimental. The insurance company has a duty to its shareholders and naturally some companies are less generous than others. A recent leaflet issued by the Central Bureau of Hospital Information (addenda to Memorandum No. 39) deals with two difficulties which have been created by insurance companies in resisting claims under Subsection (2) of Section 36. In one case the insurance company, after making an ex-gratia payment to a traffic victim treated in a hospital, has contended that it need not make any payment to the hospital because the ex-gratia payment is a voluntary gift and not a payment "under a policy issued under the Act" within the strict language of Subsection (2). In another range of cases certain insurance companies have been repudiating their liability to make any payment to the hospital where the traffic victim is a subscriber to a contributory scheme from which the hospital benefits. The companies apparently argue that, as a member of a contributory scheme is entitled to free treatment, therefore the hospital cannot recover anything from anybody. Alternatively (though this second argument seems to destroy the first) the companies rely on the rather unfortunately worded proviso to Subsection (2), which is as follows: "provided that this Subsection shall not apply in any case where a charge has been made by the hospital in respect of such treatment." The companies say that the hospital, if the contributory scheme enables it to receive any payment whatever, has "made a charge" for the treatment. Thus, it is suggested, the companies can evade liability although everyone knows that the proviso was designed for a very different type of patient. There are, as the Central Bureau's leaflet shows, answers to these attempts to saddle the hospitals with the burden of traffic accidents. The points have been mentioned here as a reminder that, in addition to the many loopholes in the general system of insurance under the Act, further methods of evasion are still being discovered or invented in that part of the system which meant the hospitals to recover some part of the expenditure imposed upon them by the developments of modern traffic.

THE BIRTHDAY HONOURS

ON page 1257 will be found the names of the medical men and women who received honours on the occasion of the King's Birthday. But in addition to those so recognised who have a place on the Medical Register, there are others in the list whose work has been discharged either in close alliance with medicine, or in fields where their activities make for the promotion of medicine. Among these may be mentioned Mr. Ralph Sneyd Pearson, director of the Forest Products Research Laboratory, and Dr. Martin Onslow Forster, late director of the Institute of Science at Bangalore; both of these have received knighthoods. Mr. A. Landsborough Thompson, D.Sc., assistant secretary of the Medical Research Council, is appointed C.B. Miss Emily Julia Slocock, superintending inspector of Factories, receives the O.B.E. The official notice of work in the nursing world is particularly timely. Miss Dorothy Edith Bannon, matron-in-chief of the London County Council Hospital Service, receives the C.B.E.: Miss Phyllis Mary Boissier, matron, Royal Prince Alfred Hospital, Sydney; Miss Georgina Brown Cameron, superintendent health visitor and inspector of midwives, Newcastle-on-Tyne; Miss Elizabeth Alletta Clark-Kennedy, maternity sister, Radcliffe Infirmary; Miss Edith Elizabeth Grieves, matron, City of London Maternity Hospital; and Miss Ellen Roberts, matron, Ministry of Pensions Nursing Service, receive the M.B.E. In the Home Civil Service the I.S.O. has been conferred upon Mr. John Lamb Frood, M.R.C.V.S., a superintending inspector under the Ministry of Agriculture and Fisheries, and Mr. George William Wight, lately of the Department of Health for Scotland. To all the medical men and women in the Honours list, and equally to those who have been in coöperation with them in their work, we offer our congratulations upon the recognition of their services.

AUSTRALIAN AND NEW ZEALAND MEDICAL ASSOCIATION IN ENGLAND.—The summer dinner of this association will be held at the Trocadero Restaurant, Piccadilly, London, W., on Friday, June 16th, at 7.45 P.M. for 8 P.M. Mr. L. Graham Brown will preside, and Sir Thomas Wilford, High Commissioner for New Zealand, will be the official guest of the association. All medical visitors from Australia and New Zealand, whether members of the association or not, are invited to attend and should communicate with Mr. E. T. C. Milligan and Mr. Philip J. Jory, the hon. secretaries, at 26, Queen Anne-street, London, W.1.

ANNOTATIONS

THE ANÆMIAS OF INFANCY

THE anæmias of infancy have presented, until recently, the most confused and unsatisfactory picture to both clinician and hæmatologist. But as Leonard Parsons aptly says in his introduction to an important study of anæmia in childhood, the first part of which appears in the April issue of the Archives of Disease in Childhood, the renaissance of hæmatology during the last decade has thrown as much light on the ætiology of blood disorders in children as on those occurring in adults. He considers that the anæmias of childhood fall roughly into two groups: (1) the nutritional anæmias due to a deficiency of one or more of the factors essential for hæmopoiesis; (2) anæmias due to damage of the erythron. For the second group he suggests the name of erythronoclastic anæmias as being more comprehensive than the generally accepted term of hæmolytic anæmias, since it includes conditions dependent upon injury to the hæmopoietic tissues as well as those due to destruction of red cells in the blood stream.

The nutritional anæmias of infancy may be caused, as Parsons and J. C. Hawksley suggest,[2] by deficient antenatal storage or deficient postnatal supply of essential factors. The former may be due to an actual deficiency in the mother, to deficient transference of the essential factor to the fœtus, to prematurity resulting in insufficient storage or, in the case of twins, to an excessive demand. Deficient postnatal supply is held to be dependent upon the inadequate content of essential factors in the milk given and to the undue prolongation of milk feeding. In later childhood anæmia appears dependent upon defective feeding or defective absorption, as in cœliac disease. Parsons and Hawksley were able to find no definite evidence for a deficiency of gastric digestion which is so important a factor in the anæmias of adult life.

Since the classical experiments of the Wisconsin school on nutritional anæmia in rats, and of Helen Mackay on similar anæmias in infants, iron has been recognised as the factor most commonly deficient in the young. As in the adult, ferrous salts offer the most efficient therapeutic source of iron. It is clearly dangerous, however, to regard the rat as an experimental substitute for the infant. For while copper is essential for hæmopoiesis in the majority of rats, and yeast is effective in treating the nutritional anæmia of rats,[1] lack of copper is a very rare factor in the anæmias of infancy as both Mackay, and Parsons and Hawksley[2] have shown; and yeast is relatively ineffective in treatment. The erythronoclastic anæmias include hydrops fœtalis, icterus gravis neonatorum, and anæmia of the new-born, which are now generally grouped under the common name of erythroblastosis of the new-born since they are probably manifestations of the same fundamental disturbance of hæmopoiesis. Though there is not yet complete agreement as to whether the characteristic histological findings in this condition precede or succeed the anæmia, members of the section of diseases of children at the Royal Society of Medicine, where several cases were shown and discussed on May 26th, agreed with the original American workers that these conditions are closely allied and probably far more common than is supposed. On inquiry it emerges, in most cases, that other children in the family have been affected. It should therefore be possible in the future to eliminate fatalities in later members of an affected family by keeping the danger in mind. Transfusion appears to offer a reliable cure, at least in icterus gravis and anæmia of the new-born. The rationale of the treatment is not yet clear, but of its value there is no doubt, a point which obstetricians should bear in mind since they are often in a position to recognise the condition. A comprehensive study of infantile anæmias calls in fact for the closest coöperation between obstetrician, pædiatrician, and pathologist.

[1] Parsons, L. G., and Hickmans, E. M.: Arch. Dis. Child., 1933, viii., 95.
[2] Parsons, L. G., and Hawksley, J. C.: Ibid., p. 117.

DIAPHRAGMATIC HERNIA AND GASTRIC HÆMORRHAGE

HÆMORRHAGE from the stomach may be the first symptom to call attention to a hernia through the diaphragm. Dr. R. Remel tells[1] of a woman, aged 29, who came to the Vienna university clinic in April, 1929, with a six months' history of severe anæmia of sudden onset, associated with breathlessness on going upstairs and with loss of appetite. On X ray examination she was found to have marked kyphosis and scoliosis with a large diaphragmatic hernia; part of the cardiac end of the stomach as large as a fist was lying behind the heart in the posterior mediastinum. The hæmoglobin was reduced to 35 per cent. There was no hæmatemesis, but occult blood was found in the stools. A blood transfusion was given and a radical cure of the hernia attempted. The thorax was opened by subperiosteal resection of the eighth and ninth ribs on the left side and a good view of the hernia obtained, but cure of the hernia had to be abandoned owing to the patient's condition. She left hospital when the wound had healed, but six months later was readmitted on account of nausea and severe vomiting, and treated by strict dieting. In spite of this a severe degree of anæmia developed for which she was once more admitted, now labelled as a case of bleeding gastric ulcer. After a preliminary blood transfusion, gastrostomy was performed; the symptoms cleared up and the patient went home with the stoma still open. Three months later she returned with the request that the fistula should be closed, but the surgeons did not feel justified in agreeing to this; in a few weeks however severe melæna again necessitated her admission to the wards, where for a fortnight she was fed only through the gastric fistula. In spite of this the melæna recurred and finally, nearly three years after the first onset of the illness in 1928, it was decided to operate and if possible to cure the hernia. The abdomen was opened through a transverse incision, splitting both recti, and the thoracic wound had to be reopened before the stomach could be brought down into the peritoneal cavity. Difficulty was experienced in freeing the stomach from the other contents of the mediastinum, owing to the adhesions following the previous operation. Five stitches closed the hole in the diaphragm from above and, as the condition of the patient was still good, the stomach was freed from the abdominal fistula and resected by the method known as Billroth II. A scar representing an ulcer was found on the lesser curvature of the resected portion near its cardiac end. No open vessels were seen on the surface of the ulcer, but the microscope showed minute hæmorrhages under the

[1] Wien. klin. Woch., 1933.

epithelium, numerous in the neighbourhood of the fistula. The patient made a good recovery.

The interest of this case lies primarily in the fact that the symptoms which brought the patient to the clinic were secondary to the hæmorrhage from the stomach; the diaphragmatic hernia was found in the process of examination. The position of the hernia behind the heart was unusual, and together with the adhesions from the previous thoracotomy made operation difficult. The technique was that recently described by Mr. T. P. Dunhill to the Royal Society of Medicine. In practice, he said, he had found it impossible to control the hernial contents without an abdominal incision to allow of the hand of the assistant retaining the viscera in the abdomen. Dr. Remel found it equally impossible to free the contents of the hernial sac and to return them to the abdomen without the thoracic approach. He claims it as the first recorded case of a gastric lesion and a diaphragmatic hernia dealt with radically at the same time. Dr. Remel mentions the various explanations of the association of gastric hæmorrhage with diaphragmatic hernia since it was first observed in 1875—e.g., torsion of the stomach, strangulation, ulceration, carcinoma, and gangrene. Ulceration, when it occurs, may involve surrounding organs such as the liver or lung. Some of the cases have been dealt with by thoracotomy and repair of the hernia alone, in others the abdomen has been opened and gastro-enterostomy performed, with or without an associated repair of the hernia. Three cases are recorded in which thoracotomy, for the repair of the hernia, and laparotomy, for the performance of a gastro-enterostomy, were done—in one case after an interval of six days, in the others at the same time.

AN ATTACK ON EXAMINATIONS

TEACHERS were at least as vocal as doctors in criticising the insistence upon the passing of examinations to which school-children are subjected, when the question of school life and nervous stability was discussed at a session of the congress of the Royal Institute of Public Health at Eastbourne on June 1st. Mr. R. E. Roper, late director of physical education for boys at Bedales School, opened the discussion, and showed, with the help of diagrams, that an investigation into a school where feeding and general conditions of hygiene left nothing to be desired had revealed a tendency to fall markedly below normal weight in a large percentage of children, and curvature of the spine of varying degrees in a considerable number, especially at the ages when they are preparing for such examinations as school certificate and matriculation. The stress is not confined to any group of schools or scholars; children at different ages in every type of school are encouraged to put forth the maximum of effort in order that they may gain some qualification which will serve as a passport into a money-earning post. Mr. Roper believes that the focusing of energy upon meeting this external demand, frequently at the expense of internal harmony, may militate against the production of the harmonious personality upon which nervous stability depends. He suggests that the element of anxiety should be removed by allowing every child in his last term at school to submit a considered course of study, upon which, together with his general record, the headmaster or headmistress would base a report. Such a report would indicate the line in which the child shows the greatest ability, and would, Mr. Roper believes, be quite as useful to the prospective employer as the holding of a standardised diploma. Following in the same strain the president of the National Union of Teachers felt it to be a matter for confession rather than self-congratulation that he had allowed all his children to matriculate; he had done so not because he approved of it, but because there was practically no door open into either professional or business life without some such qualification. Another speaker regretted the tendency for boys and girls to take such examinations as the first M.B. from school. Apart from the fact that few schools are equipped for the efficient teaching of scientific subjects, he was convinced that the maturer brain of 22 or 23 years was able to face such examinations with far less strain. Speaker after speaker emphasised the value of rest lying down for children at school. Dr. Helen Boyle spoke of the typical tired girl whose parents spend their time in trying to "buck her up" when what she needs is a rest in bed. It is a pity, Dr. Boyle thinks, that we have formed a habit of mind which regards it as odd for an upper school child to lie down in the day; children should have the opportunity to lie down when they feel tired rather than at stated times. Again, children ought to be able to meet the demands of life easily and happily; control is a faculty to be used with economy, and the effort to hold down life by control for long periods together is a waste of useful energy. In order to help children to discover their capacities and use them to best advantage, it is necessary, as Mr. Roper expressed it, to change our ideals of education, and to teach children instead of subjects.

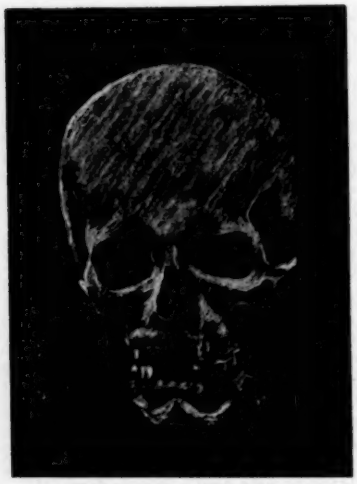
RECURRENCE OF STONE

THE liability of symptoms to recur after operations for stone in the urinary tract is notorious, but few studies have been undertaken by follow-up investigations to express this risk statistically. It is a study of this kind which Dr. J. Hellström, of the Maria Hospital in Stockholm, has published in *Nordisk Medicinsk Tidskrift* for April 29th. His study covers the period 1911–1930, and deals only with those cases which have been followed up after discharge from hospital. He classifies his cases according as they were or were not operated on. In the latter category there were 147 patients, 25 of whom (17 per cent.) had a recurrence of their stone symptoms after discharge. In as many as 21 of these 25 cases signs of recurrence of the disease appeared within the first four years after discharge from hospital. It would thus seem that if this four-year interval can be tided over uneventfully, the chances of the recurrence of symptoms in a case which has not been operated on are small. These chances differ, however, very considerably according as the stones are formed of oxalates or uric acid; a new formation of oxalate stones was observed in only 13·5 per cent. of these cases and then only once, whereas the rate of recurrence of uric acid stones was as high as 70 per cent., and it was common for one and the same patient to suffer from several such recurrences. Turning to the 232 patients on whom operations were performed, Dr. Hellström shows that 58, or 25 per cent., suffered from a recurrence of their ailments. He included among these 58 cases those in which stones subsequently developed on that side on which no operation had been performed. As in his non-operated series of cases, he found that the recurrences were most common during the first few years after discharge; of 26 recurrences on the same side as that on which an operation had been performed, as many as 13 occurred within the first three years after the operation. The chances of recurrence varied greatly according to local conditions;

the lowest rate of recurrence was observed after aseptic operations on stones in the ureter, and the highest rate after nephrolithotomies in septic cases. Dr. Hellström concludes that recurrence of stones after operations have been performed on them in the urinary tract is more common than surgeons have been inclined in the past to confess. The causes of such recurrences are numerous. Their numbers might be reduced were great care to be taken in locating all the stones before an operation by skiagrams taken from a variety of different angles. The chances of the migration of a stone just before an operation are such that the interval between the taking of a skiagram and the operation should be as short as possible. It is also, of course, most important to keep the urinary tract as sterile as possible, and in this connexion Dr. Hellström refers briefly to neosalvarsan as often having a surprisingly good effect on staphylococcal infections of the urine.

VIDI

WHEN a student after a demonstration, whether in the laboratory or dissecting room, or merely on the blackboard, can say "I have seen" he is a long way on the road to be able to add "I can remember." Many teachers have excelled in illustration of their words by effective diagrams, and at a recent meeting of the section of pathology of the Royal Academy of Medicine in Ireland a plea was entered by Prof. T. T. O'Farrell for more realistic drawing on the blackboard. His words received direct endorsement from Dr. McGrath, the president of the Academy, who said that, while he himself could remember certain illustrations of lectures which he had attended, he could also remember that it was often difficult to recognise the appearance of the object from the usual outline on the blackboard.



The significant word in Dr. McGrath's comment was "outline," because the force of Prof. O'Farrell's plea for realism depended upon his statement that actuality would be better introduced into blackboard drawing by the employment of shading. Prof. O'Farrell pointed out the obvious fact that with a pencil upon a white surface the lights are left untouched, the shadows being indicated at the depths required to bring out contours, whereas in drawing on the blackboard the lights are chalked in, the blackboard representing the shadows. But it is clear that a middle term between the blackness of the board and the whiteness of the chalk is needed to give different shadows their appropriate depths, and Prof. O'Farrell pointed out that if the middle term was too light the drawing would be unduly pale, and if too dark it would have the mystifying appearance of an over-exposed photographic print. His suggestion was that the draughtsman on the blackboard should establish the density of his middle tone, and then fill the spaces between the outlines with this tone duly graded, leaving the surface of the board for the deep shadows. He allowed that the distribution of light and shade would thus become a matter of judgment and practice, and many will feel that he suggested a problem in draughtsmanship which few lecturers, who were not well-taught artists, would be able to solve, except when dealing with certain simple subjects. As a matter of fact the amount of information that can be conveyed by simple outline in a form easy to recall, is very large, as the curves and drawings to illustrate statistics sufficiently show. We have received from the Kathleen Boland studio (Great Queen-street, W.C.2), a booklet entitled "Vidi" with some amusing examples of this fact. In simple subjects nothing is gained by the addition of shade, and, indeed, the lessons in many discourses might be obscured by elaborate drawing. But the addition of a little shading often makes a picture much clearer; for example, the marginal illustrations in Mr. Souttar's "The Art of Surgery" gain much in clearness where they are reinforced by shading. Prof. O'Farrell used the drawing of a head on the blackboard as an example where the proper placing of high lights considerably added to the clearness of the picture, adding that experiment on the blackboard would help by training the observation in light and shade in the production of good photographs for pathological supplements. These illustrations will appear in the *Irish Journal of Medical Science;* we reproduce here a sketch of a skull which he has sent us. The subject is one of real importance, for students can learn and remember valuable lessons from blackboard demonstrations. But to make the drawings on the blackboard effective more is needed than a general idea on the part of the lecturer of what he wants to show; it is necessary that he should feel certain that he is showing it. And where something more than outline is called for, something more than an elementary knowledge of drawing may be needed. Prof. O'Farrell suggests for the teacher a range of accomplishment which is not easy to acquire, but we are certain that for the elucidation of some subjects of medical interest it is worth acquisition.

PARIS CONGRESS OF THERAPEUTICS

IN the coming autumn there will be held in Paris the first French congress of therapeutics under the presidency of Prof. Maurice Loeper. Six subjects have been chosen for discussion during the three days, Oct. 23rd to 25th—viz., (1) parenteral treatment of peptic ulcer; (2) treatment of *coli* bacilluria; (3) therapeutic associations; (4) adrenalines; (5) pyretic treatment; (6) treatment of radiodermatitis. The congress will be held in three sections: Dr. Babonneix will preside over the section of medicine, Prof. Tiffeneau over the section of pharmacodynamics, and Prof. Strohl over the section of physiotherapy. The opening papers in each of these subjects are to be printed in advance and circulated to all members of the congress by Oct. 1st. Anyone who wishes to take part in the discussion of these reports or to comment on them should apply before Sept. 10th to Dr. G. Leven, 24, rue de Téhéran, Paris (8). Papers on subjects not mentioned in the programme will only be accepted subject to time being available. The entrance fee of Fr.100 (for students Fr.50) is payable to the treasurer, Dr. G. Doin, 8, place de l'Odéon, Paris (6). Cheap railway fares will be

available for those attending the congress. A list of hotels with a note of their prices will be sent to any members who desire it.

THE TREATMENT OF SQUINT

BINOCULAR vision is a subject to which more attention has been paid by ophthalmologists of late years than ever before. It has been treated from more than one point of view: the developmental, tracing the gradual approximation of the visual axes of the two eyes in animals, from rabbit to man, and with it the gradual increase in the overlapping of the two visual fields; the physiological, dealing with the actions of the external muscles of the eye on the one hand and the inter-related functions of accommodation and convergence on the other; and the practical, which is essentially the determination of the clinical methods by which the want of harmony between these two functions, often the cause of nervous strain and sometimes of actual strabismus, may be relieved. Dr. Dobson approaches the subject from the physiological and practical points of view.[1] She gives concise explanations of the relations between accommodation and convergence, of the various forms of heterophoria, and of the different grades of stereoscopic vision. She makes the reader understand that vision is not merely an optical function but a cerebral one, and deals ably with the physiological phenomenon of suspension of vision which occurs in normal individuals, but in cases of squint may go on to permanent suppression of vision or "amblyopia." She also introduces the reader to many of those methods of orthoptic training for heterophoria and squint about which we have recently heard so much. There is much in this monograph that is valuable, but some of the methods recommended for the clinical examination of patients will not meet with general acceptance, for example, the use of "dynamic retinoscopy." This method of diagnosis is at variance with the usual procedure in that it purports to test the refraction of the eye while in a state of active accommodation. In examining cases of convergent squint in hypermetropic children, Dr. Dobson does, it is true, admit the advisability of the ordinary procedure under atropine, but she prefers to order glasses which only partially correct latent hypermetropia for distance with a stronger correction for near vision. The description of various instruments used in orthoptic training is perhaps too short to enable the surgeon who proposes to take up this branch of ophthalmic practice to make his choice. For that he must see them actually in use or test them himself. The value of this work lies chiefly in helping the reader to think out the principles on which these instruments should be employed.

THE STUDY OF LEPROSY

FOR more than 300 years Franciscan monks have tended the victims of leprosy in Manila, but it was not until 1906 that the modern colony at Culion was established by the Philippine health service. In 1922 Dr. H. W. Wade became pathologist to the colony, and he and his wife with the active support of General Wood instituted a campaign in the United States which in 1925 brought in two million dollars from over 50,000 subscribers to the Leonard Wood Memorial. About one-fifth of this money was spent in constructing the new leprosarium at Cebu, extending the equipment at Culion, and building a cabin cruiser to facilitate transport, all of which were handed over to the Philippine Government; the remainder of the money was placed at the disposition of a medical board, of which Dr. W. H. Welch is chairman, interested in the general problems of health and disease prevention. This board has set itself to bring about an understanding of what the problem of leprosy means throughout the world; it organised the international conference at Manila in 1931,[1] one act of which was an attempt to delete the offensive word leper from the vocabulary. The board determined that workers everywhere should know what their fellow investigators were doing; Dr. Wade, who was made medical director of research at Culion, went the round of leprosaria in 1931–32, while Dr. J. Rodriquez studied epidemiology at Johns Hopkins before returning to the Philippines. Last year a new scheme of direct attack on the problem by highly trained experts was designed and an advisory committee with Dr. F. P. Gay as chairman was appointed to choose the experts and the problems they should investigate. During the current year Dr. J. A. Doull, Dr. M. H. Soule, and Dr. Gay are to visit the two stations in the Philippines to make a preliminary survey.

NITROHYDROCHLORIC ACID FOR HAY-FEVER

IT will be generally admitted that the desensitisation method of treating hay-fever requires a good deal of experience if successful results are to be obtained. In expert hands quite a high proportion of cases may be expected to get relief, but in general practice the results are very variable. As used by some authorities, desensitisation treatment requires a skilled attendant, almost continuous observation, and a good deal of fortitude from the patient, over a period of some days. It is clear, therefore, that the difficulties of this treatment cannot lightly be dismissed. In our current issue Prof. H. Beckman, of Milwaukee, emphasises these points and concludes that only about two-thirds of hay-fever patients are relieved by desensitisation, even in expert hands. As an alternative line of treatment he suggests a revival of the use of nitrohydrochloric acid, proposed as long ago as 1893 by S. S. Bishop: a dose equivalent to about 8 minims of the concentrated acid, diluted with 6 or 8 oz. of water, is taken three times a day after meals and once upon retiring to bed. With this treatment alone Dr. Beckman found that 69 per cent. of the 518 cases reported to him obtained definite or complete relief from symptoms. Such figures certainly compare favourably with those obtained by other forms of treatment, although they cannot bring the same degree of conviction as a series observed personally. Hay-fever is, of course, a condition in which it is notoriously difficult to draw conclusions from the results of treatment, if only for the reason that the diagnosis from other forms of paroxysmal rhinorrhœa is not always easy. How the acid therapy acts is difficult to understand; such doses could hardly affect appreciably the acid-base balance of the body, as Dr. Beckman thinks possible. But other authorities also recommend a trial of acid by mouth in hay-fever, and the treatment certainly has the merit of simplicity and few drawbacks. Dr. Beckman mentions the occasional occurrence of diarrhœa, but not the deleterious effect upon the teeth of prolonged administration. In a recent paper Dr. E. C. Stafne[2] contends that decalcification may occur, usually beginning on the palatal surfaces

[1] Binocular Vision and the Modern Treatment of Squint. By Margaret Dobson, M.D. Lond., ophthalmic surgeon to the New Sussex Hospital for Women and Children, Brighton. London: Humphrey Milford, Oxford University Press. 1933. Pp. 107. 10s. 6d.

[1] See THE LANCET, 1931, i., 876.
[2] Proc. Mayo Clinic, 1933, viii., 157.

of the upper teeth, and not prevented entirely by drinking the acid through a glass tube. It would seem prudent, therefore, not to persist long with acid therapy unless real improvement occurs. Further reports of controlled and personally observed cases treated in this way will be awaited with interest.

BIOLOGICAL DATA

WE have received the concluding part with index of the second volume [1] of Tabulæ Biologicæ Periodicæ, which are designed to keep up to date the six volumes of Tabulæ Biologicæ which were completed in 1930. These tables are extracts from periodical publications of the newest biological researches and discoveries all over the world, and the publishers point out with some justice in a covering letter that at a time when it may be financially difficult to subscribe to all the original sources of such information a handy and trustworthy summary becomes of enhanced value. Even a cursory glance through the pages of this and the previous part will give some insight into the immense ramifications of modern biological research and the demands which it makes upon data provided by other non-biological sciences. This is exemplified by the number of pages devoted to purely physical data connected with photo-electricity compiled by D. Krüger and F. Oberlies. For those concerned with plant life there is a section on plant physiology from the pen of A. Th. Czaja as well as one on early forcing in relation to periodicity by the same author, and also a collection of recent data on plant genetics contributed by H. Ch. Oppenheimer. The final article is a comprehensive survey of poisonous snakes and other vertebrates by Th. A. Maass (Berlin).

ÆTIOLOGY OF "CATARRHAL" JAUNDICE

FROM an extensive clinical experience and a special study of all patients with jaundice by means of the duodenal tube, Dr. Theodor Brugsch has recently set out [2] his views on the ætiology of so-called catarrhal jaundice. He does not agree with those who regard this form of jaundice as due to an infection. Theories based upon agglutination reactions of the serum of jaundiced patients for bacteria of the coli-typhoid group he rejects on the ground that such reactions are notoriously untrustworthy with excess of bile-pigments in the blood; and these bacteria, he says, occur no more frequently in the stools of such patients than among the population at large. The duodenal tube has enabled him to deal with this point even more thoroughly, for by this means he obtains material for bacteriological, cytological, and chemical investigation. After typical duodenal contents have been aspirated a flow of bile from the liver is obtained by the injection of 1 to 2 c.cm. of a 5 to 10 per cent. solution of decholin, a proprietary name for sodium dehydrocholate. He finds that although a catarrhal condition of the duodenum is undoubtedly present both in so-called catarrhal jaundice and in the more severe forms associated with liver atrophy, the bacterial content is only an exaggerated version of that found in normal subjects, and only rarely are pure growths of the colon bacillus obtained. The bile aspirated after injecting decholin is likewise free from anything which supports an infectious origin for the jaundice in these cases. It is thin, clear, yellow in colour, free from bacteria, and contains few or no leucocytes, with an occasional biliary cast or even an epithelial cast in chronic cases. In infectious cholangitis, on the other hand, the bacterial content of the duodenum is changed, the enterococcus, *B. coli*, and *B. proteus* are constantly present, while the liver bile shows many epithelial cells and contains bacteria. Dr. Brugsch inquires how the term "catarrhal jaundice" arose; the observations of the older English writers on gastro-duodenal catarrh accompanying this form of jaundice are, he thinks, in part responsible, and R. Virchow, in 1858, alleged that catarrh of the lower portions of the common bile-duct gave rise to obstruction. Later histological studies of so-called catarrhal jaundice have shown however the presence of hepatitis without dilatation of the bile capillaries, and characterised by intensive infiltration of the liver-cells with bile. Catarrhal jaundice in fact begins, as Dr. Brugsch puts it, as a jaundice of the liver-cell, and in seeking to explain the ætiology of this he tries to find a bridge linking the changes in the liver-cell and in the duodenum, which since they are present from the earliest stages even in the type of case with acute liver atrophy, cannot be disregarded even if their obstructive nature is discredited. A close study of his patients leads Dr. Brugsch to suspect that something ingested is responsible for the gastro-duodenal condition, and that in the young lean type, so frequently the subject of catarrhal jaundice, the liver is poorly stocked with glycogen. The liver-cells being thus in a vulnerable condition, some toxin, possibly the result of protein maldigestion, produces the degenerative changes characteristic of the condition. In one set of observations among sailors in the German navy the jaundice was ascribed by the men to the sausage and margarine in their diet; this Dr. Brugsch holds to be very likely, other food substances causing a similar condition in other patients, singly or in groups. His theory explains why certain patients beginning with a straightforward simple jaundice should later develop signs of liver atrophy; it is just a question of the degree of damage to the liver-cells.

WE regret to announce the death on Wednesday morning of Sir Walter Fletcher, secretary of the Medical Research Council.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Capt. T. W. Myles is placed on the retd. list.

ROYAL ARMY MEDICAL CORPS

The undermentioned Lts. (on prob.) are confirmed in their rank: R. T. Shipman and M. J. Kohane.

Lt. (on prob.) R. V. Wright is restd. to the estabt.

ARMY RESERVE OF OFFICERS

Lt.-Col. G. A. K. H. Reed, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY

Capt. C. R. Dudgeon (Maj. Res. of Off.) resigns his commn. in the T.A.

Capt. J. Charnley (late Spec. Res.) to be Lt., and relinquishes the rank of Capt.

Lt. S. Newsom to be Capt.

D. S. Valentine (late Offr. Cadet, Univ. of Lond. Contgt. (Med. Unit), Sen. Div., O.T.C.) to be Lt.

J. H. Richmond (late Cadet, Univ. of Lond. Contgt. (Med. Unit.), Sen. Div., O.T.C.), to be Lt.

INDIAN MEDICAL SERVICE

The undermentioned officers retire: Lt.-Cols. G. M. Millar and H. A. H. Robson.

[1] Berlin: W. Junk. Price M.55 or, to those who possess all the previous volumes, M.48.

[2] Münch. med. Woch., May 12th, 1933, p. 717.

POST-GRADUATE LECTURES

THE following are summaries of lectures delivered at the recent post-graduate course at the Hospital for Sick Children, Great Ormond-street, London. Abstracts of other lectures given in this course have appeared in our last two issues.

BEHAVIOUR PROBLEMS AND THE BACKWARD CHILD

(DR. W. G. WYLLIE)

IT is a common experience of any doctor whose practice brings him in contact with a large number of children to be asked for advice on problems of abnormal behaviour. Most often the parent prefaces the recital of the child's misdeeds by remarking that it suffers from "nerves." In the milder cases of temper tantrums, screaming attacks, I find the parent expects the trouble to be based on some state of bodily ill-health for which it is hoped a bottle of physic will speedily effect a cure. Mere flagrant offences against discipline, which have defeated all efforts at control, are attributed to some mental twist or kink peculiar to the child itself. Practically never does the parent surmise that the causes of abnormal behaviour usually have their existence not in the child itself but in its environment. The child's environment includes its home, social, and school life. In themselves the elements of friction may seem small and unimportant, but, acting collectively over a long time, they are capable of producing in the child's mind a state of unrest, irritation, and insecurity.

The child, unlike the adult, has not learned to conceal its inner feelings, and a constant play of an irritating influence upon its emotions results in an open display of abnormal behaviour. Sometimes the parent is told that the child will grow out of it, and that a cure will come of itself. Very likely it will—in the long run—and without any superficial scar being visible. To my mind, however, these problems in behaviour demand attention just as much as physical disorders, for they are quite as painful to the child and often more lasting in their ill-effects than attacks, let us say, of tonsillitis or appendicitis. Harm done to the growth of intelligence and character in childhood ill-adapts the individual to make a success of adult life. The original causes for many of the misfits and failures of later life can often be traced back to childhood. Qualities of inheritance cannot be dismissed, but their importance is often exaggerated. Most children may be said to start life with fairly equalised potentialities of behaviour. Hereditary characteristics with few exceptions, under favourable circumstances, do not interfere with normal development.

A complete list of all the problems for which parents have brought their children to the child guidance clinic at this hospital would make dreary reading. I shall mention a few, in groups, though the overlap in actual practice is considerable.

Temper tantrums.	Screaming.	Thieving.	Persistent enuresis.
Unmanageableness.	Babyishness.	Lying.	Fæcal incontinence.
Destructiveness.	Fears of school.	Truancy.	
	Fears at night.	Gang activities.	

First of all, the place of the child in the family is interesting. I have found the difficult child much more common in families where there are more than two children. The middle child of three, for instance, seems to be in a position in which it is easy to become "odd man out." In my experience the only child, though apt to become domineering and precocious, seldom presents the more serious problems in behaviour.

Most of the causes of abnormal behaviour are to be found in the home. Poverty, strangely enough, is seldom an important factor. More often one finds a history of illegitimacy, broken homes, desertion by one or other parent, or the child is being brought up by a relative. In the latter case, when the foster-parent disapproves of either of the parents, the child is sometimes expected to conform to type, and is surrounded by an atmosphere of fearing the worst. The subtle influence of such expectancy soon has its effect upon the child. Then there is the influence of the neurotic parent, who constantly voices his or her own woes, and produces a sense of insecurity and depression in the child. The child creates consternation when it says it wishes it were dead, or that it is going to commit suicide, which is nothing but a repetition of remarks heard at home. Sometimes the "solitary" child, or one that comes very late in a family of elderly parents, or the child that is adopted by an elderly foster-mother, is treated rather as a doll, and while constantly soliciting affection breaks out in other ways and is unmanageable.

The majority of cases, however, come from homes where too much care, rather than neglect, is practised. Nowadays, even the stepmother, unlike the one in fairy-tales, often makes the charge of her stepchild a difficult one by an exhibition of over-anxiety to do the best. In such cases the child's failure to behave normally is due to having far too much done for it. Over-protection, restriction of liberty, want of encouragement towards independence, and being kept infantile, are potent causes of abnormal behaviour in the young child. Some parents are apt to make comparisons between their children, and to discuss the shortcomings of the offending member in its presence. A child, so placed, quickly learns from which parent it can expect most sympathy, and holds the power of raising a domestic storm at will. Once a child has reached the stage of being expected to behave badly, and to be peculiar and different from other children, then the sense of disapproval surrounding it drives it to maintain some sort of individuality. To keep up its reputation it deals its trump card, whether that be fæcal incontinence or some other undesirable manifestation.

Altered behaviour often has a physical cause. Prolonged or frequent illness, with lengthy sojourns in hospital or convalescent homes, interrupt routine, and often undermine discipline. On returning home the child often has difficulty in fitting into the family again, and at school has a feeling of inferiority to its contemporaries who have outpaced it in class-work.

At school the over-indulged, dependent child is at a loss in a crowd of strangers. From a want of self-reliance, and a feeling of fear, it may do badly, or make no effort, and so may come to be thought stupid and backward. Another common cause of backwardness at school is fatigue. Here we must look for physical causes, a rapid rate of growth, or some chronic state of ill-health. Sometimes the regulation and planning out of the child's school-day is at fault.

A special defect, not uncommon in my experience, is an apparent inability to learn to read. The child recognises letters, but cannot read words. This visual imperception may gain for the child the reputation of being mentally deficient. On mental testing,

however, the child may make a high score. Special tuition in reading in such cases restores confidence, and the ability to read is soon acquired. Auditory imperception, where the child can hear, but spoken language is just so much sound without meaning is much rarer. Such children are looked upon as deaf, and often thought to be mentally deficient.

In all cases of behaviour problems it is best to aim at overcoming the difficulty in the child's own home. To send the child away for a holiday or long convalescence is useless, unless the conditions at home are such that there is little hope of their being remedied. In the first place a physical examination of the child is necessary to exclude any organic complaint. On being satisfied that no bodily disorder exists, very little benefit can be expected from repeated interviews with the child. Except in older children, an approach to the problem by reasoning is not possible. It is with the parents that you are chiefly concerned. To explain the causes of the child's abnormality requires a careful scrutiny of the home environment. Next, to persuade the parents that an alteration in their method of dealing with the child is necessary will call for a thorough understanding of the case, and much patience on the part of the doctor. These problems of behaviour can seldom be dealt with at one sitting. In the more serious cases it is of great help to obtain a fairly exact estimate of the child's intelligence. This can best be done by a trained psychologist, who always forms part of the personnel of a child guidance clinic. With a knowledge of the background, formed by the child's intellectual capacity and the conditions in which it lives, the physician is better able to advise the parents on the measures most suitable to overcome the difficulty.

SEPTICÆMIA IN CHILDREN

(DR. DAVID NABARRO)

SEPTICÆMIA may be defined as a disease in which micro-organisms occur in the circulating blood in unusual numbers, and as an essential feature of the disease. It is highly probable that a mild form of bacteræmia often occurs in apparently healthy individuals, undue multiplication of the micro-organisms being prevented by the bactericidal action of the blood and the defensive properties of the white blood corpuscles. In the early stages of certain diseases a bacteræmia is perhaps always present—e.g., in typhoid and other enteric infections, in pneumonia, in tuberculous, meningococcal, and influenzal meningitis, in osteomyelitis, and in gonococcal arthritis—and a blood culture will frequently reveal the causal micro-organism. Pyelitis, which is so commonly seen in children, may be due to the effects on the kidneys of their attempts to filter off micro-organisms from the blood. In this group of diseases the bacteræmia forms a subsidiary feature of the clinical picture, in contradistinction to the conditions clinically recognisable as septicæmia in which the patients are usually very ill, with a temperature of 103°, 104°, or 105° F., rigors, varying degrees of anæmia, and with local lesions depending on the cause of the septicæmia—for example, sloughing wounds, enlarged glands or cervical abscesses after tonsillectomy, a septic umbilicus, a tender mastoid or other ear manifestations, or tenderness and swelling due to an osteomyelitis.

CAUSES AND DIAGNOSIS

Cases of septicæmia in children may be grouped under the following headings:—

(1) *Neonatal*, usually due to umbilical sepsis. The streptococcus is nearly always the infecting organism, sometimes the staphylococcus. These are generally fatal.

(2) Those following the operation of *tonsillectomy*. Considering the large number of tonsillectomies performed on children, it is surprising in how few cases this serious complication arises; nevertheless it is well to bear in mind the possibility of its occurrence, and not tell parents that the operation is a trivial one and devoid of all risk.

(3) Those arising from purulent *otitis media* and its complications, mastoid disease, and lateral sinus thrombosis.

(4) Those occurring in connexion with acute *osteomyelitis*, acute septic epiphysitis, and arthritis. This probably constitutes the commonest group in children, and is generally due to the staphylococcus, though sometimes the streptococcus or the pneumococcus may be the causal organism. Whereas formerly these staphylococcal cases were usually of the fulminant type, the patients dying of septicæmia in two or three days, nowadays they appear to be less severe. This may be due to the fact that the children are better able than they were formerly to fight the infection, because they are better fed and cared for, as a result of the education of the mothers by health visitors, and at child welfare centres. Earlier diagnosis and modern methods of fighting the infection may also play a part.

(5) Cases arising from small *wounds* or *abrasions*, which at times indeed may be so insignificant as to be overlooked, and to give rise to so-called "idiopathic septicæmia."

(6) Cases of *infective endocarditis*, usually supervening upon a rheumatic infection.

In the diagnosis of septicæmia the examination of the blood is of prime importance. A complete blood count may show a reduction in the number of red corpuscles to 4,000,000 or even to 3,000,000 or less, and a corresponding reduction in the percentage of hæmoglobin, especially in cases due to a hæmolytic streptococcus infection. The leucocytes may be increased to 15,000, 20,000, or even 30,000, and in the differential count there is what is known as a "shift to the left" in the Arneth or Schilling hæmogram, with an absolute absence of eosinophils and an increase in the percentage of monocytes. At the same time a blood culture should be done by an approved bacteriological method. A good vein, preferably at the bend of the elbow, should be selected, the skin over this should be thoroughly disinfected by washing at least three times with ether soap or methylated ether to guard against the possibility of contamination with skin organisms. A 25 c.cm. all-glass syringe (in preference to a glass and metal Record syringe, which is more difficult to manipulate) should be employed, and 10 to 20 c.cm. of blood be obtained for culture. This is distributed into a number of large tubes of heart digest broth, so that not more than 5 c.cm. of blood is added to each 20 c.cm. of broth. The tubes are incubated at 37° C. for four days, and examined daily for signs of growth. If a hæmolytic streptococcus is present, this may be evidenced by hæmolysis in the tubes as early as 24 hours after incubation. A negative report should not be given before the end of four days. Sometimes the organisms may be so scanty that growth occurs in one tube only out of four or more sown. If growth be obtained, the organism must be identified by the ordinary bacteriological methods. Sometimes even in an undoubted case of septicæmia a positive result may not be obtained until the second or third culture.

Cases of septicæmia are usually of such gravity that it is manifestly unwise to wait for the results

of blood culture before initiating treatment, though if one intends to treat the patient with antitoxic serum, the nature of the infecting organism, whether streptococcus, staphylococcus, pneumococcus, &c., must be known. This can, however, often be surmised from the nature of the case—e.g., that it is probably a streptococcus in neonatal, post-tonsillectomy, mastoid or middle-ear disease and cellulitis cases, or a staphylococcus in osteomyelitis of long bones.

SPECIFIC TREATMENT

The treatment of septicæmia may be considered under the following headings :—

(*a*) *Specific.*—(1) By means of the appropriate serum. (2) By means of sensitised vaccines. (3) By means of ordinary vaccines.
(*b*) *Chemotherapy.*—(1) With mercury compounds. (2) With arsenic compounds.
(*c*) *General.*—(1) Transfusion, including immuno-transfusion. (2) Adjuvants.

Serum therapy.—It is important that the appropriate antiserum should be used at the earliest opportunity and in sufficient doses. At least 10 c.cm. should be injected, intramuscularly, twice a day, and the injections should be given, as a rule, on four consecutive days. It is a common mistake to stop the serum injections prematurely because the patient's condition is apparently so much improved. Serum should not be given intravenously (except perhaps in desperate cases such as a rapidly progressing case of tetanus, which of course is a toxæmic, and not a septicæmic condition) lest serious anaphylactic shock be induced.

The serums at present on the market are highly concentrated, and therefore much less liable than formerly to produce serum sickness with its unpleasant urticarial eruptions and painful joints. For streptococcal infections there are three types of serum: the antiscarlatinal, the polyvalent, and the anti-erysipelas serum. The first of these is probably the most potent and to be recommended in infections with a hæmolytic streptococcus; the second in infections with *Streptococcus viridans* and other non-hæmolytic streptococci; and the third in erysipelas. It is a good plan sometimes to use one and two in combination. Antistaphylococcus, antipneumococcus, and antimeningococcus serums are now available, and should be used in the appropriate cases, as early as possible, and in sufficient doses. To combat anaphylactic shock, 1 c.cm. adrenaline 1/1000 should be injected, repeated if necessary in half to one hour; stimulants, warmth, and oxygen may be applied if indicated.

For serum rashes and joints, Contramine 0·125 g. in 2 c.cm. normal saline injected intramuscularly, and a like dose repeated the following day, if necessary, is a valuable antidote; it may be supplemented with 0·5 c.cm. 1/1000 adrenaline. If a patient has received a large amount of serum, it is advisable to test him for serum sensitivity which, if present in marked degree, might be serious in after life, should serum treatment be again necessary. If the patient be found hypersensitive, he should be gradually desensitised.

Sensitised vaccines.—These were introduced by Besredka, and differ from ordinary vaccines in that the emulsion of organisms used in the preparation of the vaccine is allowed to stand for 24 hours in contact with the appropriate antiserum. After thorough washing (three times) with saline, the sensitised organisms are used as a vaccine which may be given in far larger doses than an ordinary vaccine —e.g., 100 to 250 millions for the first dose—and may be repeated in larger doses on the following or second day without harming the patient. The rationale of the use of these vaccines seems to be that the organisms by being sensitised become so modified by the antibodies in the serum that they are easily attackable by the patient's body fluids or phagocytes, with the result that the patient is stimulated to produce his own antibodies. While the sensitised vaccine is being prepared, the patient may be given injections of antitoxic serum or of some chemical, as will shortly be described. I have seen dramatic results follow the use of sensitised streptococcus and pneumococcus vaccines in several cases of septicæmia in children and adults.

Ordinary vaccines are not recommended in the acute states of septicæmia, but may be called for in chronic cases where "fixation" abscesses continue to form.

CHEMOTHERAPY

Whereas a considerable measure of success has attended the use of chemical agents in protozoal and spirochætal infections, equal success has not been achieved in localised or general bacterial infection. Many different agents have been used for this purpose, but I shall refer only to two mercury compounds (perchloride of mercury and Mercurochrome-220, soluble) which have been at all frequently used in this hospital.

We rely mainly on the *perchloride of mercury*, and have had some striking successes in cases of streptococcal, pneumococcal, and staphylococcal septicæmia. The dosage should be gr. 1/24, increasing to 1/20, or even 1/16, dissolved in about 5 c.cm. sterile saline. As with serum therapy, I find the tendency of the surgeons is to give too small a dose. It is not as a rule necessary to cut down on a vein to expose it, and with practice an ordinary intravenous injection, through the skin, can be given, but great care must be taken not to allow any leakage of the antiseptic around the vein, else painful phlebitis may ensue. The injections should be repeated every day or every other day, and if there is no improvement after three or four injections, no further injections are likely to be beneficial. If perchloride of mercury is not tolerated, mercurochrome (5 c.cm. freshly prepared of 1 in 400 solution for an infant, or 1 in 200 for older children) may be tried.

Intravenous mercury can be given concurrently with intramuscular antiserum, and further, if a relapse occurs after initial improvement, a second, or even a third course of mercury can be given.

Organic *arsenic preparations* (606, 914, and derivatives) have proved of some value in streptococcal and pneumococcal infections, and it might be worth while trying Sulphostab, Sulfarsenol, or other form of "sulpharsphenamine" in children suffering from acute bacterial infections. The dose should be 0·1 to 0·15 g. given intramuscularly or subcutaneously, the advantage of this mode of administration over the intravenous in small, ill children being very great. L. Colebrook recommends giving a second dose six hours after the first, a third dose 15 to 18 hours after the second, and subsequent doses if necessary (all the doses being of the same size) at respective intervals of one, two, three, four, and five days.

GENERAL METHODS OF TREATMENT

Transfusion is not to be recommended in the acute stages of septicæmia, unless the anæmia be profound, but may be of considerable value during the convalescent stage, especially after infection by the hæmolytic streptococcus. 150 to 300 c.cm. of blood may be given. Immuno-transfusion—i.e., transfusion

with blood from a donor who 24 hours previously has received a full dose of vaccine—is probably of no more value than an ordinary transfusion, and we no longer use immuno-transfusion here.

Adjuvants.—Septicæmia patients obviously need the most careful and skilled nursing, particular attention being paid to diet and fresh air. Alcohol should be given in moderate doses every four hours, and vitamins A and D supplied in the form of Adexolin or Radiostoleum.

There is an interesting case in the wards at the moment, under the care of Mr. Twistington Higgins, which exemplifies many of the points brought out in my lecture.

It is that of a little boy aged 4, whose tonsils and adenoids were removed early in March, 1933. He was ill afterwards for three weeks with a swelling in the neck. This was opened on March 22nd, and streptococcal pus evacuated. Five days later the leucocytes were 31,000 and a hæmolytic streptococcus was grown from the blood. 10 c.cm. anti-streptococcus scarlatina serum (concentrated) was injected intramuscularly each day from March 28th to April 4th. On March 30th and April 1st he was given hydrarg. perchlor. gr. 1/40 intravenously (this, in my opinion, was too small a dose). A few days later his red corpuscles had fallen to less than a million per c.mm., and his hæmoglobin to only 18 per cent. A blood transfusion of 120 c.cm. was given, and four days later the red corpuscles were nearly two million, and the hæmoglobin 40 per cent.

As the temperature was beginning to rise again, anti-streptococcal serum was given daily (10 c.cm. per dose) except for three days, when it was omitted, between April 10th and 26th. On April 14th a further transfusion of 270 c.cm. blood was given, and an abscess was opened in the buttock. The temperature being still high, three more injections of perchloride of mercury (gr. 1/24, 1/24, and 1/16) were given on April 18th, 19th, and 21st. After this the temperature still went up to 103° F. every day, and several abscesses localised in the back, buttocks, and finger. On May 3rd two further abscesses were incised from which *Staphylococcus aureus* was grown. The temperature remained swinging between 98° and 103° until May 16th, and another abscess was opened on May 19th in the left arm. An autogenous vaccine prepared from the staphylococci and streptococci was now given, and as a result of small doses of this vaccine the temperature is now subsiding, and the child is apparently doing well.

TREATMENT OF CONVULSIONS AND EPILEPSY IN INFANTS AND CHILDREN

(DR. W. J. PEARSON)

WHEN satisfied that the case is a genuine one, the first step in the treatment of convulsive seizures of all kinds should be to identify and remove predisposing and exciting causes on the one hand, and to adopt immediate measures to terminate the convulsion on the other. Where the attacks are occurring only at intervals and the child is seen between times, we can approach the problem deliberately and determine from inquiry and examination the antecedent factors in the case, and give advice chiefly of a preventive nature, though possibly also prescribing sedative medicine for use immediately or if the need arises. Where the convulsion is in progress, and perhaps so severe as to take the form of status epilepticus, immediate control of the seizure will of course be the first consideration.

Our aim must always be to try to place the case in its true category, and to do so one must bear in mind that due allowance must be made for the factor of age both as regards the easy susceptibility of the nervously unstable infant and as regards the higher incidence at certain age-periods than at others. A high incidence in the first three months can be largely accounted for by neonatal disease—and from six months to two years rickets is a factor of importance, though symptomatic convulsions are common all through the first year, while later many of the possible causes of this class of convulsion are without influence in this respect. Another reason for the heavy incidence of convulsions in childhood is the frequency with which idiopathic epilepsy commences in childhood—often in the first three years, though the maximum comes at the age of 14 to 16.

Having this perspective of the subject as regards age, we can approach the problem of the individual case and proceed, by careful analysis of the history and by complete physical examination of the child, to determine the following points:—

Is there any reflex irritation?
Is there a toxic cause?
Has there been a sudden rise of temperature?
Is rickets present?
Is there any evidence of injury or disease of the brain or meninges?

If all these causes can be excluded we are probably dealing with infantile idiopathic convulsions or epilepsy, though it may be difficult to decide, especially in a child between 1 and 2 years old, as to whether the convulsions are truly epileptic or of rachitic origin; for it must be recognised that not all spasmophilic infants show signs of rickets any more than all rickety infants are spasmophilic. If on examining the child for a possible existing cause no gross evidence of disease can be found in the nervous system or the chest, special attention should be given to investigating the condition of the throat, ears, stools, and the urine (for gravel, infection, acetone, albumin), and to noting the degree of fever; for it is known that hyperpyrexia, whatever its cause, can occasion convulsions. Though asphyxia is part of a convulsive attack, it is important to remember, from the point of view of treatment, that it may be a primary cause, whether induced by an injury to the brain at birth, to congenital heart disease, breath holding, pertussis, or to acute broncho-pneumonia.

We can now consider the immediate management of severe convulsions. When summoned to such a case the doctor should have chloroform, a solution of chloral, a hypodermic syringe with morphia, and also a soft rectal tube available for use if required, and he should, when considering measures for relief, be visualising the chief pathological conditions present—namely, cerebral hyperæmia, asphyxia with pulmonary congestion, distension of the right side of the heart and a tendency to congestion of all internal organs, and hyperexcitability of the nervous centres which will be unduly stimulated by peripheral irritation of all sorts.

The first general indications will be, therefore, to ensure quiet and freedom from noise and bright light, and to apply cold, in the form of an ice-bag, to the head, at the same time warming the trunk and extremities by placing the child in a hot bath containing mustard.

In actual control of the convulsions, the remedies on which reliance can be placed are inhalation of chloroform, rectal injection of chloral, and morphia hypodermically. Chloroform is the most reliable for an immediate effect, and may be used, in such circumstances, for the youngest infant. At the same time chloral (dosage grs. 4 at six months, grs. 6 at one year, grs. 8 at two years, and $\frac{3}{1}$ of water) may be injected high into the bowel and repeated in one hour if necessary, though usually an effect is to be looked for in 20 to 30 minutes. If it is possible to give chloral by mouth, gr. $\frac{1}{2}$ can be given to the new-born, and after this age the dose is a quarter of those quoted above as suitable for rectal use. If in

spite of administration of chloral the convulsions show a tendency to continue as soon as chloroform is withdrawn, morphia should be injected hypodermically; the dose should be gr. 1/40 at six months, gr. 1/20 at a year, and 1/16 at two years. In older children paraldehyde ℥ii to ℥iii may be given rectally in place of chloral, and often proves efficacious.

The remaining immediate treatment in most cases will be designed to counteract the effects of asphyxia, of high temperature, and of toxic absorption from or irritation of the bowel.

Oxygen is often an agent of great value, and convulsions which continue in spite of all other treatment do sometimes yield immediately when it is administered. It is, however, likely to be of most value in cases due to asphyxia. If the temperature is very high, relief can be given either by immersing the patient in a cold bath or else by tepid sponging. It is wise in infancy, at least, to irrigate the colon thoroughly with warm water, to remove any possible source of irritation. It is a common experience to note the striking improvement following the giving of an enema in children with epilepsy who are constipated. If the child is found to be suffering from acidosis the result of infection, the indication will be to give glucose and saline rectally. Lastly, lumbar puncture may be found to afford relief, not only in cases of acute meningitis, but also in status epilepticus, if the fontanelle is found to be bulging.

This broad outline of treatment may be usefully concluded by a few special remarks on three conditions: idiopathic infantile convulsions, the convulsions of rickets, and idiopathic epilepsy.

Idiopathic Convulsions.—Many of the convulsions in the first few weeks of life which are not due to head injury are of this nature. They often start quite abruptly when the infant, usually a boy, is two to three weeks old, and tend to be repeated at short intervals, and may last for days unless properly treated. Such cases are often vaguely supposed to be suffering from colic or indigestion, though in reality there are no symptoms or signs to support this view, and their nature is obscure. Treatment consists in giving chloral in reasonably big doses so as to get the baby well under its influence. The child should be kept drowsy for 24 hours, after which the dose is gradually reduced. Under this treatment the convulsions, in most cases, disappear, never to return. While under the influence of the drug feeding must be managed with great care or else milk gets into the trachea and causes bronchopneumonia.

Spasmophilia or nervous *rickets* is most commonly seen in the artificially fed in the second half of infancy, and the onset of the convulsions is sometimes secondary to laryngismus stridulus, a form of breath-holding, itself another manifestation of spasmophilia. This condition is associated with a diminished calcium content in the blood and nervous tissues, and though chloral and bowel lavage may be necessary to control the seizures in the first place, the usual treatment is to give calcium bromide and cod-liver oil by mouth, which in most cases gives early relief from the symptoms.

Chronic Idiopathic Epilepsy.—It is only when convulsions continue to occur, when they are periodic, when they cease during physical attacks, or when they alternate with minor attacks of petit mal, that the diagnosis of epilepsy is justified in the younger child. Once the diagnosis is established, and provided the fits are not very frequent, a course of treatment, which should last for three months at least, should be instituted. It is important to mention, in the first place, that in all severe epileptic seizures care should be taken by detailed physical examination and by Wassermann test to exclude a syphilitic basis.

The medicinal treatment is essentially the same as that for adults. If bromide is prescribed alone, the dosage will range from grs. 3 t.d.s. to an infant up to grs. 15 to 20 a day at puberty. The value of bromide often seems to be enhanced by the addition of tinct. belladonnæ or of sod. biborate. If large doses of bromide are given, the usual rule of prescribing arsenic in the mixture, with a view to preventing a bromide eruption, should be followed. Large doses of bromide, however, often prove both mentally and physically depressing, and it is becoming a more common practice to combine bromide—in smaller doses—with luminal, though the mixture may advantageously contain belladonna as well. Luminal can be given as sod. luminal gr. ¼ to gr. ½ twice a day, and the dose of grs. 1½ t.d.s. should not be exceeded in the case of a child under 10 years of age. It has been asserted that luminal causes mental deterioration, but on the whole this statement does not seem to represent the average experience if the dosage is carefully regulated, and it further commends itself for use by reason of its equal efficiency in petit mal and grand mal.

If these measures are not sufficient, recourse can be had to other drugs such as urethane, but it is often better practice perhaps to stop all drugs for a time and pay more special attention to hygienic and environmental conditions, and advise a rest and change of air in the country.

An important question is that of régime. It is not sufficient to ensure hygienic living, to insist on care of digestion and avoidance of constipation—one must also impress on the parents the necessity of intelligent management of the child. They must avoid at all costs the mistake of conveying a sense of isolation, of inferiority or of invalidism to the patient, and while avoiding undue and unnatural excitement, the epileptic child must be provided with regular employment and allowed to concentrate on some definite task, whether in the home or at school. If serious abstract learning has to be deferred, it is at least possible to give the child an active and occupied life, and to encourage interest in the life of the community which should have the effect of helping control, not only of his moral self, but of his ailment.

A word must be said about the treatment by ketogenic diet—i.e., one in which the carbohydrates are severely restricted, the proteins moderately so, while most of the calories are provided by fat, though it is also necessary to restrict the intake of fluid. Though there is hardly enough published evidence in this country to assess the value of this method, some American results (Helmholz and Keith) seem good enough to suggest that it has acquired a place in treatment. Certain drawbacks, such as mental instability, unquenchable thirst, vomiting, and even jaundice, have been met with in some cases when such a diet has been embarked upon, and it is therefore wise to admit the child to hospital both to find the diet which will suit his idiosyncrasies as regards fat, and also to control the degree of ketosis. The striking improvement both in mental clarity and complete relief from the attacks recorded in successful cases is impressive enough to urge continued trial of its value, despite its limitations, especially when one remembers the picture of misery and apathy with which one is only too familiar in the severe epileptic whose attacks are being controlled by sedatives.

SPECIAL ARTICLES

THE GOVERNMENT'S HOUSING PROGRAMME

WORDS OR DEEDS?

BY LORD BALFOUR OF BURLEIGH

"THE slums are our most crying social evil; their removal is our chief social need . . . We undertake that the whole driving force of the Government, both financial and administrative, shall be behind the movement, to see it through to a conclusion." These are brave words, and their author, the Minister of Health, has said much more in Parliament and out of it to lead the country to hope for "a mass attack on the slums." The purpose of this article is to inquire how far the Government's programme as at present announced is likely to realise the hopes expressed in a leading article in THE LANCET last week.

What *is* the housing problem which faces us to-day? It is, in a word, the problem of creating homes at rents they can afford to pay and within reach of their work, for the poorer paid workers of this country. It is the problem of rehousing under decent conditions and at reasonable rents the thousands of working-class families at present living either in the slums, or under conditions of overcrowding which amount to slumdom.

The Government programme consists of:—

(1) The Housing (Financial Provisions) Bill.

(2) The Rent and Mortgage (Interest Restrictions) Bill.

(3) An intensified programme of slum clearance to be carried out by local authorities under the 1930 Act.

(4) Any measures which may result from the deliberations of the Moyne Committee.

No. (1), the Housing Bill, does two things. It abolishes the 1924 Act subsidy and it creates the scheme under which the Minister hopes to secure the erection of low-rented working-class houses through the medium of the building societies. The discontinuance of the 1924 Act subsidy must be accepted as a measure of economy and the full effects of its abolition are impossible to foresee with certainty. But one prophecy may be made with complete confidence, and that is that no large scale contribution to the solution of the housing problem as defined above will be made in the large industrial areas, where help is most wanted, by the building societies scheme. That scheme depends on individualist private enterprise working for individual profit, and unfortunately the difficulties of the situation, including those of finance, are such as to render the problem incapable of solution on individualist lines.

FINANCE

Take first finance. The average all-in cost of building a three-room non-parlour house, including land, sewers, and roads, was stated by the Minister on the second reading of the Housing Bill to be £360 with money borrowed at 4 per cent. for 60 years, and on this figure he based hopes of a supply of such houses to be let at 8*s*. 2*d*. a week, or 10*s*. 2*d*. inclusive of rates. The comparative figure in the case of a house financed by a building society with money lent at 4 per cent. and repayable at 30 years instead of 60 he stated as 10*s*. 1*d*., or 12*s*. inclusive of rates.

The fallacy of relying on averages is illustrated by the Minister's statement that the rates on a house of the kind now average 2*s*. a week, a figure which has been questioned but never explained. Moreover one would like to know how the £360 figure is arrived at. Is it the average cost of building one such house in different parts of the country including London and the large towns? If so, it is valueless, as the number of houses needed will obviously be much greater where costs are higher than where they are lower. Competitive private enterprise can only operate where there is a profit to be earned over and above the commercial cost of providing the required capital, and it is obvious that the building societies scheme will only provide houses, if at all, in the areas where building costs, land, &c., are much below the average, for there must be room for profits for the builder over and above the 4 per cent. he will pay for his money. Be it further noted that there is no provision whatever in the Bill for control of the rents which are to be charged.

Consider by contrast to the average cost stated by the Minister, the problem to be faced in London, bearing in mind that the labourers and unskilled workers in general are receiving about £2 5*s*. to £3 a week when in full-time employment. Municipal workers—e.g., dustmen—are popularly supposed to be highly paid; dustmen in fact fall under Grade B of the Joint Industrial Council for Local Authorities, non-trading section (manual workers), and receive after deduction of superannuation, health and unemployment insurance about 52*s*. 6*d*. a week. In the engineering trades (London district) the labourer's wage is 43*s*. 8½*d*. net for a full week. Such wages are common enough among families with young children living in the slums and illustrate the need for three-room houses at rents of from 9*s*. to 12*s*. a week, inclusive.

The costs of building in London, inclusive of land, roads, and sewers, are of course far higher than the Minister's average of £360, and obviously if we are to wait until private enterprise, financed by building societies or not, will meet this need, we shall wait for ever. Dwellings at such rents will be forthcoming under the 1930 Act in connexion with slum clearance, but it is the necessary *additional* houses with which we are now concerned.

ORGANISATION

So much for finance. But there is another great difficulty—viz., that of organisation and management. It must be emphasised once again that the problem is a *re*housing one. A scheme of slum clearance is successful in proportion to the number of slum-dwellers rehoused under better conditions elsewhere. It is a failure in proportion to the number who move on to form new slums elsewhere. Moreover the rehousing which we are considering includes the rehousing of the grossly overcrowded as well as the slum-dwellers. It is a task of vast extent and complexity and one which can be successfully tackled only by large-scale organisation, aiming always directly at the stated object—viz., the rehousing of the largest possible proportion of the people living in any given overcrowded or slum area. While the utmost yield to be expected from capital employed will be such as to afford no incentive to competitive private enterprise the social value of the work is obviously of the highest possible kind. But clearly nothing of this sort can take place within the terms of the Housing Bill.

The second item in the Government programme, the Rents Bill, provides for the continuance of rent control in Class C.—i.e., low-rented—houses until 1938, "and no longer." So far as it goes this is

a useful provision, which will materially help to preserve what is called the pool of low-rented dwellings; that is to say, it will slow down the rate at which the "pool" is at present being diminished by decontrol. But that is all; the Rents Bill, by reason of its provisions with regard to subtenants, will not preserve undiminished the existing number of low-rented dwellings; still less will it do anything to increase that number.

The third item, work by local authorities under the 1930 Act, appears at present likely to be the main constructive plank in the Government's programme. The Minister is confident of securing a large increase of activity all over the country. He hopes that discontinuance of the 1924 Act subsidy will constitute a powerful incentive to local authorities to work under the 1930 Act. The Minister has spoken of putting pressure on local authorities, of requiring surveys from them, and definite programmes of work, and so on; all of which is excellent, but the effect remains rather problematical. It all has rather a familiar ring about it reminiscent of the days of Mr. Greenwood. Still, let us hope the expectations of the Minister will be realised. He has spoken of a maximum of 12,000 houses the first year, but he sets no financial limit to the amount available for subsidy under the 1930 Act; obviously far more than 12,000 houses a year will be needed if existing slums are to be replaced within a period measurable in generations, and that is to disregard the progressive deterioration of other property built 60 and 80 years ago which is relentlessly proceeding—greatly stimulated, of course, by overcrowding. But suppose the output under the 1930 Act to be double that indicated by the Minister as the first year's maximum; suppose it to be 24,000 houses per annum, or any other figure, it must be remembered that all such houses will be only for rehousing families from slum houses destroyed and will not otherwise increase the general pool of low-rented dwellings available for the poorer-paid workers. In light of this, what becomes of the provision in the Rents Bill authorising control of Class C. houses to 1938 "and no longer"? For the Minister himself in moving the second reading of the Bill stated that the pressure for accommodation in Class C. houses was so great that the increase of rent occurring on decontrol averaged 85 per cent. By 1938, if the Government's 1930 Act programme is successful, and in the absence of additional low-rented houses, the pressure will obviously be greater still, and total decontrol further off than ever.

THE KEY TO PROGRESS

Taking therefore the first three items of the Government's programme it is impossible to feel any confidence in the prospect of a real achievement in housing. If there were nothing else to come the much vaunted "mass attack" would seem likely to peter out, and leave things very much as they are, except for the economy effected by the withdrawal of the 1924 Act subsidy. But if fears for the future must necessarily be entertained, great hopes are also justified in view of the terms of reference of the Moyne Committee. These are as follows: "To report what, if any, further steps are necessary or desirable:—

"(*a*) To secure a proper standard of fitness for human habitation, in working-class houses which are neither situated in an area suitable for clearance under Part 1 of the Housing Act, 1930, nor suitable for demolition under Section 19 of that Act.

"(*b*) To promote the supply of houses for the working classes without public charge through the agency of public utility societies, or other bodies, subject to similar limitations, operating in particular areas or otherwise."

Section (*a*) points to reconditioning, and like slum clearance, reconditioning, while admirable in itself, does nothing to meet the greatest need of the moment, additional low-rented houses.

But Section (*b*) with its reference to public utility societies may hold the key to much greater progress in rehousing than has yet been possible, and indeed suggests the possibility of a comprehensive plan on a national scale. For "public utility" methods and outlook are exactly what are required to enable the most acute difficulties both of finance and of large scale organisation to be successfully overcome.

A national housing board established with statutory powers, and working through energetic and influential local societies, would act in coöperation with the local authorities and would be able to take the broadest possible view of the whole housing problem. There would be no interference with, or discouragement of, private enterprise for the field of work of the national housing board would lie outside the regions where unaided private enterprise can operate. The public utility method, on the other hand, would be precisely adapted to the large scale organisation and socially minded management which the nature of the problem demands. The ownership of reconditioned property in addition to new blocks of low-rented dwellings would be a factor which would certainly facilitate the rehousing of the slum-dwellers and might perhaps also be made a means of assisting the Board's finance. The whole problem of finance would be eased once Government assistance were forthcoming by way of guarantee or otherwise, and once rents could be adjusted, not to the production of commercial profit, but merely to secure a low rate of interest on capital.

The possibilities of a national scheme on some such lines as these are very great, and for this reason the report of the Moyne Committee will be awaited with intense interest and anxiety by all who are concerned with housing work. It is indeed on the proposals of the committee and consequent action of the Government that the answer to the question now depends—the Government's housing programme—deeds or only words?

PARIS

(FROM OUR OWN CORRESPONDENT)

THE LUNATIC AT LARGE

THE congress on forensic medicine, held in the Asile Sainte-Anne, came to an end on May 24th, when Prof. Henri Claude read a paper of great interest to the public as well as to the medical profession. His subject was the lunatic at large. Even in this country of liberty, equality, and fraternity, there is a steadily growing wave of opinion against the misuse which the dangerous lunatic makes of his liberty. The daily recital of murders and minor crimes of violence by lunatics is monotonous to most readers, and more than exasperating to the victims. Recently a man, known for several years to be insane, shot down a couple of women whom he had never met before. His defence was that he wished to prove that men are stronger than women. Lunatics of this class enjoy a considerable degree of liberty by virtue of the law of 1838, the sponsors of which seem to have been more concerned with safeguarding the interests of the lunatic than those of his potential victims. Prof. Claude was emphatic in his recommendation of certain legislative and administrative reforms. Two of them may be

briefly mentioned here. He would like to see established many more mental hygiene centres to which patients could be admitted with no more embarrassing formalities than those required for the admission to hospital of other classes of patients. These centres would also be devoted to the early diagnosis and prevention of mental disease. Another measure he advocates is a system of supervision of patients discharged from asylums. This supervision would have to be in the hands of competent social service workers who would form a link between the patient and the mental hygiene centre. The chief stumbling-block is the limitation of the personal freedom of a fellow-citizen whose crime is hypothetical.

NOTIFICATION OF INFECTIOUS DISEASE

Some rather startling figures have been presented to the Academy of Medicine by Prof. Léon Bernard, who is a member of the commission appointed to investigate the problem of the notification of infectious diseases. The law of 1902 has been largely a dead-letter. Medical practitioners give two reasons for their non-compliance. The first is the obligation to preserve professional secrecy. The second is the alleged futility of notification. Why denounce your patient or his relations to the authorities if all they can do is to disinfect the premises—a measure whose utility is freely questioned? Prof. Bernard thought the first objection could be met by notification to a medical officer of health—i.e., doctor to doctor—instead of to some administrative service. In 1920, outside the Department of the Seine, there were only 38 health services, staffed by 20 medical officers of health, whereas in 1932 the number of these services had risen to 79, of which 72 were in the charge of properly qualified medical officers. The number of notifications of the three common infectious diseases has been rising sharply. Typhoid fever: in 1922 there were 4787 and in 1929 there were 7280 notifications. Diphtheria: in 1922 there were 12,624 and in 1929 there were 20,493 notifications. Scarlatina: in 1922 there were 7435 and in 1929 there were 14,869 notifications. This apparently alarming increase reflects, in Prof. Bernard's opinion, nothing more than the growing tendency on the part of medical practitioners to notify their infectious cases. That energetic officer, Dr. Loir, of le Havre, is setting an example to other communities in France.

VIENNA

(FROM OUR OWN CORRESPONDENT)

INCOME-TAX OF MEDICAL MEN

By an agreement between the Ministry of Finance and the economic council (Wirthschaftliche Organisation) of the medical profession in Vienna, an arrangement was arrived at last year which regulates the taxation of medical men in this country. Every doctor is required to file his returns, and has to pay income-tax and an occupational tax (Erwerb-Steuer). The agreement postulates two kinds of professional income: that earned in private practice, and that obtained from panel practice or from appointments carrying fixed salaries. No occupational tax is due for income derived from the latter source. The doctor is entitled to deduct from his gross income all such expenses which are necessary for the pursuit of his medical practice. To facilitate the scheduling, the tax authorities have agreed to admit without further control a fixed percentage of deductions—according to the amount of gross receipts—covering consulting-room rent, heating, lighting, telephone, insurance against fire and burglary, attendants and service, subscriptions for medical journals, medicines and instruments and their repairs and renewals, and also all taxes imposed on medical men except the occupational tax and the "turnover-tax" (see below). The deductions are: 800 schillings for incomes below 2000 sch. or less; 35 per cent. for incomes between 2000 and 3500 sch. (about £120) a year. For incomes up to 6000 sch. it amounts to 30 per cent.; up to 10,000 (£330), 25 per cent.; up to 15,000, 20 per cent.; up to 20,000, 18 per cent.; up to 25,000 (£850), 15 per cent. For incomes above 25,000 sch. the fixed sum of 4000 (£135) may be deducted. These deductions apply to general practitioners and specialists with the following exceptions: radiologists with gross takings up to 20,000 sch. (£660) may deduct 50 per cent.; up to 28,000 sch. (£950), 45 per cent.; and above that sum, 40 per cent. The same percentages are in force for dental surgeons. If a medical man thinks that his indispensable expenditures exceed these figures, he must produce proof, and then can deduct the sum really expended (and proved) from his gross takings and claim taxation on the remainder only. The rate of income-tax is: net income in schillings up to 1400 no tax; from 1400 to 3400, 1·1 per cent.; from 3400 to 5300, 2·2 per cent.; from 5300 to 7200, 3·3 per cent.; from 7200 to 10,200, 4 per cent.; from 10,200 to 14,000, 4·4 per cent.; for every 1000 sch. above 14,000, 60 sch. (6 per cent.) tax must be paid. This works out about 5 per cent. for an income of 20,000 sch., and 6½ per cent. for one of 30,000 sch. (approximately £1000), and so on. Besides this the medical man has to pay the occupational tax, which amounts to 1 per cent. for net income up to 4800 sch., 2 per cent. for net income up to 6000 sch., 3 per cent. up to 7200 sch., and 4 per cent. above that sum. He also has to pay a percentage, formerly 2 per cent., but since Jan. 1st, 1933, 4 per cent., from his "turnover"—that is to say, from his gross takings. He is entitled to charge this turnover-tax on his bill and demand it from his patients, but as a rule he has to pay it out of his own pocket, as a doctor can hardly ever cash a small percentage on his small bills, though the tax on them taken all together may run up to a considerable sum. This turnover-tax is payable every month, the other taxes every quarter. If income is earned in panel practice, contract practice, or sick-club practice, or derived from fixed appointments with public corporations, the income-tax is deducted automatically every month, no occupational tax or turnover-tax being due from this income. As a rule, a doctor with a medium-sized income of, say, 10,000 sch., which is regarded as fair for a general practitioner nowadays, pays 12 per cent. tax (if his income is earned privately), and one who earns 30,000 sch. (£1000) pays a little less than 15 per cent. Since the beginning of 1933, all taxes except the turnover-tax have been raised by a surplus tax of 1·5–5·5 per cent. The turnover-tax has been doubled, the doctor has to keep an exact record of his professional returns, and the tax authorities are entitled to inspect these financial notes if they wish to do so.

POLITICS AND SCIENCE

The attitude of National-Socialistic Germany towards medical men without regard to their scientific standing has had the effect that, amongst others, the Austrian Röntgen Society has withdrawn its promise of coöperation with the corresponding German society. Originally, Prof. Kienböck, of Vienna, had been invited to preside over the meetings of the

German X Ray Congress in 1933; he is president of the Austrian Röntgen Society, and this famous body, which boasts of being one of the most prominent of its kind, had promised to coöperate with the German society to make this year's Congress a full success. But a few days ago Prof. Kienböck received from the German society a letter asking him to resign his office at the Congress as his mother was Jewish. This communication was felt keenly in Austrian medical circles as, at best, a serious lapse of tact. The Austrian Röntgen Society thereupon stood by its president and withdrew coöperation from the German society. A similar incident has taken place relating to the congress of the German Oto-Rhino-Laryngologists. Here, too, a famous Vienna scientist, Prof. Neumann, a world authority on surgery of the ear, who is of Jewish faith, was to be one of the presidents. He also received a letter from Germany asking for his resignation. Most of the Vienna ear, nose, and throat specialists will now boycott this congress. The German scientific societies will soon be able to boast of a "splendid isolation."

INTRODUCTORY ADDRESS OF PROF. EPPINGER

After a vacancy lasting over two years, the first medical clinic of the Vienna University, formerly held by Prof. Wenckebach, has been taken over by Prof. Eppinger, a pupil of C. H. von Noorden. In his first lecture delivered a few days ago, the new chief of the clinic discussed the problem of the modern scientist, as viewed from the medical standpoint. Forty years ago, he said, morphology and anatomy reigned supreme in the trend of thought of the students, therapeutics were somewhat neglected, and "nihilistic" treatment was prevalent. Only gradually a change has been effected, and the physiological and functional methods of observation were inaugurated by the teachings of Johannes Müller in Germany and Hans Horst Meyer in Vienna. The latter is the pioneer of experimental pharmacology, and his institute is still the Mecca of experimental therapeutics. Prof. Eppinger pointed out that only a good physiologist can be a good physician; that is to say, the normal function and efficiency of the organs must be studied, in order to find the proper and appropriate means for treatment of pathological conditions of these organs. This system has made von Noorden famous in his dealings with metabolic disorders, and Wenckebach in his researches on the heart, whilst Durig, the physiologist, and Pick, the pharmacologist, have added important achievements to modern materia medica by their systematic researches. Prof. Eppinger would revive the institution of the family physician of olden times, but equipped with modern knowledge. His clinic will try to teach general internal medicine, not only one or two special branches, and so make the student fit to cope with the problem of the diseased human being, approaching him with the broad outlook of the scientist.

BUCHAREST

(FROM OUR OWN CORRESPONDENT)

BOYCOTT OF GERMAN DRUGS

In view of the fact that in Rumania the number of Jewish physicians is fairly great, no wonder the boycott which originated in some of the western countries has spread to Rumania. The slogan, "Don't buy German goods," became so general that it impressed the non-Jewish physicians, who are standing solid by their Jewish colleagues. The whole thing is the more striking as medical culture, particularly in Transylvania and Bucovina, is definitely of German origin. In all the Balkan countries there is a lack of home-grown medical works, so that students as well as physicians are obliged to read foreign medical books, and as the German is the foreign language familiar to most of them it is the German books and journals which they read, and in these they are introduced to German drugs to which, in consequence, they give preference. The case is different with the old kingdom of Rumania, where French is understood by all better-class people and physicians adhere to French medical literature and pharmaceutical preparations. The boycott provoked some sharp criticism in the lay press, which accused the physicians of dabbling in politics to the detriment of their patients, and alleged that there were German drugs which were indispensable because other foreign preparations did not approach them in efficacy. Neosalvarsan was mentioned as one of these. The leaders of the boycott replied that when German products were cut off during the war the other countries were none the worse for it, their recovery statistics of sick and wounded being as good as those of Germany. Neosalvarsan for instance could be replaced by novarsenobillon (French), neomesarca and syntharsan (Swiss), neoiacol (Italian), neosalutan (Polish), or revival (Hungarian)—all licensed in Rumania, whereas kharsivan and neo-kharsivan are not. French manufacturers hastened to issue leaflets containing a list of all the German preparations licensed in Rumania and their French substitutes. For example, in place of albargin they suggest cryptargol; for antipyrine, cryogenine; for aspirine, aspiraise; for bromural, borosodine; for calcium-diuretine, diurocalcine; for luminal, alepsol; for vigantol, neo-morubiline. The result of the boycott is reflected in the custom returns, the quantity of German drugs imported falling to barely a third of what it was a year ago, while the French imports rose sharply. British manufacturers took no steps to capture the Rumanian market.

ABOLITION OF LECTURESHIPS

The new university law, which recently came into force, contains, as I have already reported, radical changes in the plan of examinations to be passed by students, and also in the organisation of the teaching staff. A new feature of the law is the abolition of lectureships; this category of teachers in fact ceases to exist with the next academic year. The law has shown an utter disregard of the rights of the present lecturers who, to acquire their title, have had to pass examinations requiring years of preparation and original literary work. Lecturers of the legal faculty are in a much better position because, with certain exceptions, they gained admission to the university staff as non-paid readers. The union of university lecturers has started a movement for redress.

STRIKE OF BUCHAREST STUDENTS

A short time ago the students of the legal faculty of the University of Bucharest went on strike against the high examination fees. As medical students have to pass many more examinations than do the legal, and their fees, particularly in the practical subjects, are still higher, it is not surprising that the example was catching. Medical students stopped attending lectures, and the professors found only empty benches to lecture to. The students demand a single final test for the degree of doctor after completion of all the university semesters, as they are familiar with it in French universities. At present in the Bucharest

faculty 38 year-end examinations have to be passed during the six years of study; and in spite of these, which are stiff enough, the final examinations also include theoretical subjects, such as anatomy. In this way preparation for the clinical subjects is greatly checked. The dean of the medical faculty announced to the students that the board of professors acceded to their request and would pass it on to the Ministry for approval. The students replied that they would continue on strike until their appeal was finally settled by an official enactment. The board then undertook to intervene at the Ministry for an early decision, whereupon the students resumed their studies.

IRELAND

(FROM OUR OWN CORRESPONDENT)

HOSPITALS SWEEPSTAKES

THE figures for the Irish Hospital Sweepstake on the Derby show a further slight falling off since the sweepstake on the Grand National, but the hospital fund will benefit by a little over half a million pounds. This will bring the total amount from the series of nine sweepstakes which has already been distributed to the hospitals, or is now awaiting distribution, to approximately five and a quarter million pounds. The Bill which provides for the future administration of the fund is still under discussion in the Dáil, and up to the present has not undergone any substantial amendment.

THE IRISH MEDICAL REGISTRATION COUNCIL

The session of the Irish Medical Registration Council, held on May 2nd, dealt mainly with formal business. There was no penal case for hearing. A complete code of regulations governing the conduct of penal cases, which had been drafted by counsel, was adopted. The registrar reported that in 1932 there were 95 original registrations, 1 registration of a diploma in public health, 5 registrations of additional qualifications, 3 registrations of change of name, and 4 certified copies supplied. Prof. Henry F. Moore, M.D., Sc.D., was appointed a member of the Therapeutic Substances Advisory Committee.

MEDICINE AND THE LAW

Evidence in Trial for Criminal Abortion

THERE is a general principle that a witness need not answer a question if the answer will tend to incriminate him or her. Accomplices are naturally within this rule except in so far as, having become witnesses for the Crown, they are reasonably assured of immunity from prosecution. The point arises perhaps most often on indictments for criminal abortion. It is notoriously difficult to obtain evidence on which proceedings for this offence can be launched. There will usually be a dispute as to the nature and motive of an alleged illegal operation. The best evidence will be that of the woman on whom the operation has been performed, but she will be particeps criminis, and is technically liable to stand her trial as an accomplice. The late Mr. Justice McCardie, who expressed in the criminal courts views which not only favoured birth control but also seemed to excuse abortion, upset the prospects of more than one prosecution by encouraging the chief witness in such cases to decline to give evidence on the ground that her answers might expose her to criminal proceedings. His personal attitude was not shared by his brother judges. On May 23rd a woman was being tried at the Central Criminal Court for criminal abortion. When the woman on whom the illegal operation had been performed went into the witness-box to give evidence for the prosecution, counsel for the accused pressed the court to rule that she was an accomplice, and therefore could decline to put herself in peril by giving evidence. Mr. Justice Charles observed that both he and Mr. Justice Swift had had to consider the point; they both took the view that, if witnesses were allowed to decline to give evidence in this class of case, a conviction would never be obtained. He ruled that the witness was never in peril of prosecution and that she must give her evidence. The trial resulted in a conviction, and the accused was sentenced to three years penal servitude.

The Crown has several methods of dealing with an accomplice who is called as a witness. The simplest is to leave the accomplice out of the indictment. If the accomplice is indicted, however, it is easy to offer no evidence and thereby to invite an acquittal; alternatively a plea of guilty may be taken on arraignment or at any later moment when the plea of not guilty is withdrawn. Or a nolle prosequi can be entered. In practice an accomplice who gives evidence for the Crown is safe enough from prosecution. The main problem of admitting such evidence is that of warning the jury as to the amount of corroboration which is necessary or desirable.

Scale of Professional Charges

In the Croydon county court last week the judge reduced the claim of a physician for professional services rendered in attending the defendant's wife for a badly sprained ankle. There had been 21 visits; the practitioner lived at Penge and the patient at Chipstead; the patient's house was 12 miles off, and so a charge was made of 3 guineas for each visit. The patient's husband made an offer of 45 guineas in attempted settlement of the claim, and paid 45 guineas into court with the defence that this was a fair and reasonable rate of remuneration. The judge held that a charge of 3 guineas per visit was excessive. He awarded 1½ guineas per visit; in other words he awarded less than even the defendant had thought fair. In answer to the judge the plaintiff doctor said he would charge half a guinea or a guinea for a visit to a patient within walking distance. He justified his claim as reasonable because he had to travel 12 miles. There was some playful agreement between the bench and the plaintiff over the suggestion that a higher charge was made because a doctor was poaching on another doctor's preserves. Sir William Wheeler gave evidence in support of the plaintiff. In his opinion the charges were fair, though owing to varying conditions it was difficult to pronounce upon any individual case.

The Bathbourne Inquest

The summing-up in Tristram *v.* Moon Life Assurance Co. contained interesting obiter dicta about the coroner's court ("the only one-man judicial tribunal whose pronouncements are never subjected to a second opinion") and the appointment of coroners with medical qualifications ("selection for the one judicial post where an autocratic habit of mind is likely to be most dangerous"). Sympathy will be felt towards Dr. Ambrose Busy, the

Bathbourne coroner, to whose conduct of an inquest Mr. Justice Oat referred with disapprobation. The medical profession, however, will have appreciated the merits of the case, for it was reported by Mr. A. P. Herbert, barrister-at-law, and published in *Punch's* series of Misleading Cases (May 31st). Mr. Herbert's judicial Oats, be they never so wild, provide plenty of grain as well as chaff.

THE BIRTHDAY HONOURS

THE list of honours issued on the King's Birthday contains the names of the following members of the medical profession :—

K.C.B.

Surgeon Vice-Admiral REGINALD ST. GEORGE SMALLRIDGE BOND, F.R.C.P., F.R.C.S.
Honorary physician to H.M. the King; medical director-general of the Navy.

K.C.V.O.

Colonel THOMAS PEEL DUNHILL, C.M.G., M.D., late A.A.M.C.
Honorary surgeon to H.M. the King; associate surgeon, professorial unit, St. Bartholomew's Hospital.

Commander MORTON SMART, D.S.O., M.D., late R.N.V.R.
Specialist in treatment of injuries to muscles and joints.

Knights Bachelor

HUGH THOMAS DYKE ACLAND, C.M.G., C.B.E., F.R.C.S.
Honorary surgeon, Christchurch Hospital, N.Z.; vice-resident of the Royal Australian College of Surgeons.

ARTHUR WILLIAM GARRARD BAGSHAWE, C.M.G., M.B., D.P.H.
Director of the Bureau of Hygiene and Tropical Diseases, London.

RAYMOND HENRY PAYNE CRAWFURD, M.D., F.R.C.P.
Consulting physician, King's College Hospital; registrar of the Royal College of Physicians of London; chairman of Council, Epsom College.

KEDAR NATH DAS, C.I.E., M.D.
Principal of the Carmichael Medical College, Calcutta.

WILLIAM STEWART DUKE-ELDER, D.Sc., M.D., F.R.C.S.
Ophthalmic surgeon, St. George's Hospital.

Colonel ROBERT MCCARRISON, C.I.E., D.Sc., M.D., F.R.C.P., I.M.S.
Honorary physician to H.M. the King; director of nutritional research, Indian Research Fund Association.

C.B. (Military Division)

Major-General JAMES ANDREW HARTIGAN, C.M.G., D.S.O., M.B.
Honorary physician to H.M. the King; deputy-director of medical services, Aldershot Command.

Colonel WILLIAM HUGH LEONARD, F.R.C.S.
Honorary physician to H.M. the King; late Indian Medical Service.

C.M.G.

JOHN LANGTON GILKS, F.R.C.S.
Late director Medical and Sanitary Services, Kenya.

Colonel FREDERICK ARTHUR MAGUIRE, D.S.O., F.R.C.S., F.R.A.C.S.
Deputy-director Army Medical Services, New South Wales.

C.I.E.

JAMSHEDJI NASARVANJI DUGGAN, O.B.E., F.C.P.S., D.O.
Professor of ophthalmology, Grant Medical College, Bombay.

Lieut.-Colonel WALTER LIDWELL HARNETT, M.D., F.R.C.S., I.M.S.
Professor of surgery, Medical College, Calcutta.

Brevet Colonel JAMES MCPHERSON, F.R.C.S., K.H.S., I.M.S.
Honorary surgeon to H.M. the King; residency surgeon in Mysore, Bangalore.

I.S.O.

CHARLES FRANCIS LASSALLE, M.D.
Deputy surgeon-general, Trinidad and Tobago.

O.B.E. (Military Division)

Major BIJITENDRA BASU, F.R.C.S., I.M.S.
Specialist in ophthalmology, Rawalpindi District, India.

Lieut.-Colonel ALEXANDER DAWSON, M.B., R.A.M.C.
Assistant director of pathology, Eastern Command.

Temp.-Major ST. GEORGE EYRE HARRIS, M.D., R.A.M.C.
Surgeon and specialist in otolaryngology, Cambridge Hospital, Aldershot.

O.B.E. (Civil Division)

ERACHSHAW DINSHAW SHROFF, L.R.C.P., D.P.H.
Health officer, Karachi, India.

EVAN EDWARD OWENS, *M.C.*, L.R.C.S.

M.B.E.

Miss PATRICIA RUTH ELLIOTT, M.B., B.S.
Missionary doctor in the Straits Settlements.

FREDERIC GARDINER ROSE, M.D., D.M.R.E.
Medical superintendent, Mahaica Leper Hospital, British Guiana.

Kaisar-i-Hind Medal

Lieut.-Colonel SAMUEL GEORGE STEELE HAUGHTON, O.B.E., M.D., I.M.S.
Officer commanding Indian Military Hospital, Quetta.

Mrs. LAURA MARGARET HOPE, M.B., Ch.B.
Practitioner in Bengal.

COLITIQUE ANTI-COLIBACILLARY VACCINE

(MESSRS. WILCOX, JOZEAU AND CO., 15, GREAT ST. ANDREW-STREET, LONDON, W.C.2.)

THIS product, manufactured by the P. Astier Laboratories for the treatment of all *B. coli* infections, has been submitted for report by THE LANCET. The manufacturers state that "it consists of an emulsion of dead bacteria prepared in the usual way, and secondly of a filtrate having a powerful bacteriolytic action." It can be administered in three ways: the total vaccine may be given (*a*) by the mouth, (*b*) by subcutaneous injection, and (*c*) the filtrate alone may be applied locally. It is held by many

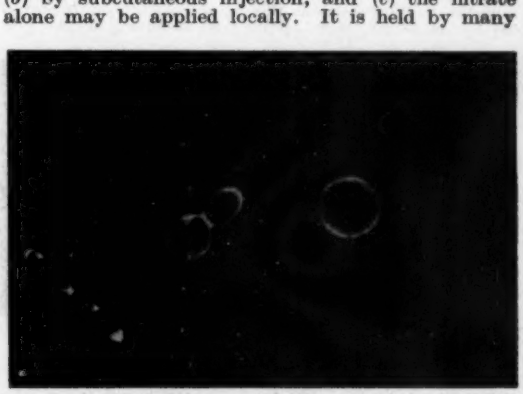


FIG. 1.—Photomicrograph of *B. coli* swelling and becoming granular in the presence of Colitique. (×circa 5000.)

authorities that immunity can be produced by the oral administration of a vaccine, and this is the method suggested by the manufacturers for the treatment of intestinal infections and infections of the genito-urinary tract; the preparation is particularly recommended for the prevention and treatment of the pyelitis of pregnancy. For more severe conditions—e.g., *B. coli* septicæmia—it is suggested that the preparation should be given both subcutaneously and orally. The proposed dosage is one ampoule (3 c.cm.) daily by the mouth for ten days, to be repeated if necessary after the lapse of a further

period of ten days; if injected subcutaneously, 1 c.cm. daily for a similar period.

Our investigations into the properties of this preparation suggest that it consists of a more or less completely lysed suspension of *B. coli*, together with a powerful bacteriophage capable in favourable circumstances of causing the destruction of *B. coli*. The preparation is a very light amber-coloured fluid, clear to the naked eye and under conditions of dark-ground illumination. It is neutral in reaction (pH 7·0), and consists essentially of a solution of peptone 0·25 per cent. in normal (0·85 per cent.) saline. Polypeptides and amino-acids are present in small amount, together with very faint traces of albumin. No chemical antiseptics could be detected. The possibility that any such substances might be present is further eliminated by the fact that micro-organisms (staphylococci, streptococci, and *Micrococcus catarrhalis*) develop normally when inoculated into the preparation. On centrifugalisation nothing visible is thrown down, but if the microscopical deposit is examined a few bacilli are found, indistinguishable in their staining reactions and morphological appearances under dark-ground illumination from typical *B. coli*.

KILLING AND LYSING PROPERTIES

These properties were tested on *B. coli* suspensions in broth in dilutions varying from 1 in 10 to 1 in 10^{11}. Six different cultures were employed, one from a case of cystitis, two from cases of pyelitis, and three from plates of normal fæcal cultures selected at random. After many trial experiments it was found that cultures of *B. coli* could be killed and lysed when the following conditions were present:—

1. The bacilli must be living for lysis to take place.
2. Cultures must be fresh; only partial lysis occurs with cultures more than 24 hours old. The results described below were obtained with broth cultures 12 hours old.
3. The strength of the culture must not exceed approximately 250 million organisms per c.cm. If more are present the rate of multiplication of the bacteria is greater than the rate of their dissolution and the medium becomes increasingly opalescent.
4. The organism must be of a susceptible strain. Fresh cultures from the case of cystitis, from one of the cases of pyelitis, and from one of the fæcal plates were killed and lysed. Cultures from the second case of pyelitis proved to be refractory, only partial lysis occurring in the first

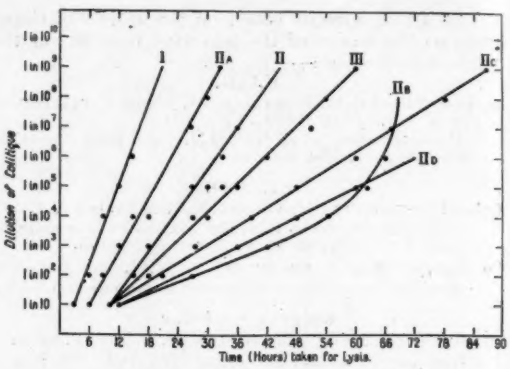
FIG. 2.—Photomicrograph of *B. coli* immediately after rupture. (× circa 5000.)

instance. After two rapid (six hourly) subcultures, however, the bacteria became sensitive and lysis occurred normally. Similarly, cultures from one of the remaining fæcal plates required six subculturings before they became sensitive, whilst preparations from the last stool remained insensitive after 14 subculturings, although there was microscopical evidence that some bacillary destruction and lysis were taking place. At this time an ordinary agar plate was spread with a thin film of diluted (1 in 1000) Colitique in the form of the letter C; after drying it was evenly inoculated with one of the refractory cultures and incubated at 37° C. In 24 hours that part of the film previously spread with colitique was relatively free from colonies. Such colonies as were present were alive and developed normally in subcultures, at the same time maintaining their resistance. It would appear therefore that the reason why some cultures are refractory may be the presence of a few insusceptible organisms.

The following changes may be noted when a fresh, living culture of a susceptible organism is incubated with colitique in varying dilutions.

1. The emulsion slowly clears, the time required according to the dilution being shown in Graph I.

2. When the process of clearing is observed by dark-ground illumination, it is seen that in 45–60 minutes after colitique is added to a bacterial suspension some of the bacilli assume a more granular form and show a tendency to swell. This process of granulation and swelling proceeds until many of the bacteria are oval or spherical in form with a diameter of approximately 4 to 5 μ. These spherical forms are



GRAPH I. represents the time taken for lysis of a susceptible strain of *B. coli* in emulsions of different strengths in the presence of colitique in varying dilutions. It will be observed that lysis takes place in the presence of a dilution of colitique as high as 1 in 10^{9}—that is, 1 in 1000 million. The strength of the emulsion in Curve I. is 10 million, and in Curve III. 200 million *B. coli* per c.cm. In Curves II., II.A, II.B, II.C, and II.D the strength is 50 million *B. coli* per c.cm. In II.A the emulsion is made alkaline; in II.B bile, and in II.C trypsin has been added; in II.D the colitique had been previously heated for 30 minutes at 70° C.

abundant in the stronger dilutions in two to three hours, and show a marked tendency to occur in short chains of two or three elements. The appearances seen are shown in Fig. 1. If these spherical forms are closely watched some of them will be seen to burst, their place being taken by a cloudy mass of granules which slowly dissolve (Fig. 2). The process of rupturing takes place in a fraction of a second, and appears to be the means by which dissolution is effected; no partially dissolved or attenuated forms are ever observed. The process continues until practically all the bacteria have become spherical or have ruptured, though it is not uncommon to find a few unaltered forms even after the mixture has become clear to the naked eye. When first observed, a mixture of colitique and a *B. coli* emulsion is optically clear (apart from the bacteria themselves), but as the process of dissolution advances an increasing number of fine granules showing active Brownian movement appear. These granules subsequently dissolve, a process requiring about three days for completion, the mixture again becoming optically clear.

3. Somewhat similar observations can be made by means of ordinary Gram-stained preparations. After 30–40 minutes a few bacteria which stain badly can be found. With the passage of time the number of poorly staining bacteria increases, spherical and ovoid forms appear, and the amount of amorphous debris increases.

4. The process of solution, determined nephelometrically in strong, and by counting in weaker emulsions, is shown in Graph II.

5. Killing power and time are impossible to determine on the basis of a Rideal-Walker coefficient owing to the fact that a few resistant bacteria may be present in an otherwise susceptible emulsion.

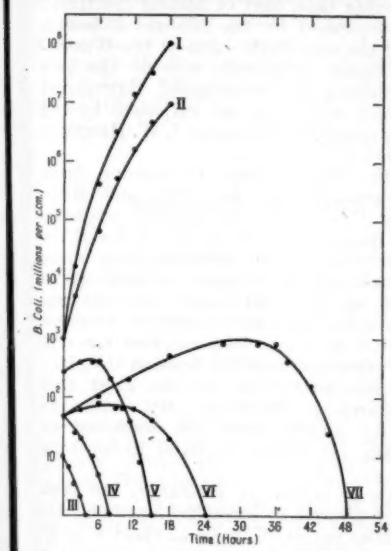
EFFECTS OF INTESTINAL SECRETIONS

1. *Acid.*—No retardation of growth of bacteria and no lysis were observed in the presence of 0·2 or 0·1 per cent. hydrochloric acid. The active principle, however, is not destroyed, as neutralisation after a period of two hours results in lysis.

2. The addition of *pepsin* to the acid solution is without effect.

3. *Alkali.* At a pH value of 7·8 (equivalent to the alkalinity of the upper intestinal tract) the rate of bacterial destruction was found to be increased (see Graph I., Curve II.A).

4. The presence of *bile* is definitely inhibitory to the action of colitique (see Graph I., Curve II.B).



GRAPH II. shows the effect of various factors on the time taken for lysis of emulsions of *B. coli*. Curve I. represents a control culture (*B. coli*, 1000 million per c.cm.). Curve II. represents a similar culture with undiluted colitique. Curves III., IV., and V. show the process of lysis with cultures of 10 million, 50 million, and 250 million *B. coli* per c.cm. respectively. Curve V. shows an initial increase in the bacterial count, since within the first few hours bacterial proliferation is proceeding more rapidly than the bacterial destruction. Curves VI. and VII. represent the lysis of a culture containing 50 million organisms per c.cm. in the presence of weaker solutions of colitique. In Curve VI. the strength of the colitique was 1 in 1000, and in Curve VII. 1 in 1,000,000. It will be observed that the time taken for lysis is approximately twice as long in Curve VII. as in Curve VI., and more than twice as long in Curve VI. than in Curve IV., but that in time even a very weak solution of colitique is effective. It would appear from these observations that the amount of lytic principle actually increases during the process of solution.

5. *Trypsin* (in 0·1 per cent. sodium carbonate) is inhibitory, but even after 24 hours action it does not appear actually to destroy the active principle; however, it slows down the rate of the reaction considerably (see Graph I., Curve II.C).

ACTION OF BODY FLUIDS

No inhibitory effect on the action of colitique was observed when the following substances were added up to a concentration of 5 per cent. to mixtures of colitique and *B. coli* emulsions: blood-serum, citrated whole blood, mucus, urine, pleural fluid (sterile), and filtered fæces. The bacteria present in the urine in the case of cystitis were completely dissolved on the addition of colitique.

The active principle is destroyed in about 30 minutes at a temperature of 75° C. At a lower temperature (70° C.) there is attenuation, lysis being delayed and not occurring in greater dilution than 1 in 10^5. At 65° C. (for 30 minutes) there is no apparent destruction of active principle.

Diffusion across coarse collodion membranes can occur without evident loss of activity, but with fine membranes practically the whole is retained.

OBITUARY

J. A. SHAW-MACKENZIE, M.D. Lond.

WE regret to learn of the death of Dr. Shaw-Mackenzie, who will be known to many of our readers as the indefatigable exponent of personal views on the nature and treatment of cancer.

John Alexander Shaw-Mackenzie was the second son of the late Charles Shaw-Mackenzie, member of the Indian Civil Service and laird of Newhall in Ross-shire. He was born in 1857, and educated at Haileybury, whence he proceeded for his medical training to University College Hospital. He qualified in 1880 as L.S.A., and in the following year as M.R.C.S., and proceeded to the M.B. Lond. in 1889. After holding various resident appointments and clinical assistancies he became medical registrar and pathologist to the Victoria Hospital for Children, and later assistant physician and pathologist to the Chelsea Hospital for Women. He was at the same time physician at the Heart Hospital, Soho-square, where he paid particular attention to the ailments of women, and at this period in his career intended to practise as a gynæcologist. A reorganisation, however, of the staff of the Chelsea Hospital led him to alter his plans, and for the last 30 years he concentratcd his attention upon the treatment of cancer.

In 1905 he published a pamphlet explaining his methods of hypodermic medication in the treatment of inoperable cancer, based on a belief that a relation existed between cholelithiasis and malignant disease. His technique consisted of the injection of Chian turpentine, regarded as a solvent of cholesterin. Later he made trial of hypodermic injections of trypsin locally, accompanying the injections with the administration internally and outwardly of pancreatic solution, and sent communications to the medical press in support of his views. In 1909 an investigation of the action of digestive ferments and tissue extract, when injected into malignant growths in mice, was published in our columns, the Imperial Cancer Research Fund having placed facilities and material at the investigator's disposal. This work showed evidence both of industry and enthusiasm, but the results of the experiments went to show that no definite beneficial action could be ascribed to any of the injections, though for a period it looked as if they had some influence. There is no doubt that Shaw-Mackenzie was profoundly disappointed that he was unable to secure the support of other workers, but he continued his researches which later took the form of an inquiry into the whole mechanism of immunisation with special reference to the rôle played by lipase. He recorded his experimental evidence, as obtained at the pharmacological and bacteriological laboratories at King's College, London, in THE LANCET in 1919. The connexion of these experiments with his previous work on the treatment of cancer was a very loose one, although to himself they appeared as a development of his original views. He had by this time interested a group of well-known clinicians and pathologists in his work, and in 1922 he published in these columns some observations on the diagnosis of cancer by means of serum reactions which had been made with the coöperation of members of the staff of the physiological and bacteriological laboratories at King's. The thread of his arguments was that variations in the accelerating or activating power of serum of lipase as contained in pancreatic

extracts or in the juice itself occur in disease, and that this power of the serum is decreased in cancer but on improvement or recovery it returns to normal. He made certain converts to his views, but was gravely disappointed that in authoritative places his work was found inconclusive.

By the death of an elder brother Dr. Shaw-Mackenzie succeeded many years ago to the Newhall estate. He married Frances, daughter of the late Robert Yule, by whom he had one son and two daughters. He was a J.P. for the counties of Ross and Cromarty and was, when in residence in the country, both a good shot and a keen fisherman.

ROBERT DONALD, M.A.N.Z., M.R.C.S., D.P.H.

THE death of Dr. Robert Donald will come as a shock to all who knew him at the London Hospital, where he was regarded (Prof. Bulloch writes) with affection and interest not only for the old-world forms of courtesy which he habitually displayed, but also for a touch of eccentricity which made him do everything in an original manner which no one had ever thought of before.

Donald made valuable additions to the technique of bacteriology and pathology. In 1913 he came into notice with a drop method which rested on the principle that the size of a drop of liquid yielded by a clean pipette is determined by the outer circumference of the pipette, due allowance being made for the rate at which the drop is detached and the temperature. He applied this fact with great ingenuity to the determination of the Wassermann reaction and to cell counts of cerebro-spinal fluid, blood and bacterial fluids, the results being published in the Proceedings of the Royal Society and in THE LANCET. Donald was an accurate observer and had no interest other than that of finding the truth. In the big test organised by the Medical Research Council (1918) on the diagnostic value of the Wassermann reaction Donald voluntarily entered the lists with his micro-method and maintained throughout the test an accuracy which was not surpassed by the other testers, who were C. H. Browning, L.W. Harrison, and J. McIntosh.

Of Scots origin, Donald came to London from New Zealand, where he took his M.A. and B.Sc. degrees at Otago University. He studied medicine at the London Hospital and took his M.R.C.S. in 1903 and D.P.H. Oxf. 1904. After holding some junior appointments at the hospital he returned to Dunedin and set up as a radiologist but was not successful. After some years he returned to England and was assistant in the bacteriological, and later in the pathological departments of the London Hospital. For a time he was pathologist at the East End Hospital for Children at Shadwell. By nature he was not made for routine work but preferred to potter about doing the things he liked in his own original ways.

Some years ago he retired to Penzance, but continued to interest himself in scientific matters. He died, on May 27th, in his 67th year, shortly after he had undergone a palliative operation, leaving a devoted wife to mourn his loss.

PUBLIC HEALTH SERVICES

Regrouping of L.C.C. Beds

The final instalment [1] of the L.C.C. annual report on public health contains under the heading "Various Arrangements at Hospitals," some indication of the extent which regrouping has reached under the 1929 Act. For instance, in view of the lack of accommodation in London for the treatment of children suffering from congenital syphilis arrangements have been made for such cases to be admitted to St. Margaret's (Kentish Town). Mental observation wards were provided by the guardians at 19 hospitals and institutions but the present tendency is to concentrate such patients into units of suitable capacity where they can be better observed. At present these are St. Alfege's, St. Olave's, Fulham, St. Mary Abbots, Lambeth, St. Leonards, St. Peter's, St. Nicholas', and Hackney. The use of certain certified institutions as "places of safety" for the temporary accommodation of cases of mental defect will relieve the accommodation in these observation wards. Cases of venereal disease previously scattered in 14 different hospitals have now been concentrated in six—viz., Bethnal Green (20 beds, F.), Fulham (10 beds, F.), Lambeth (20 beds, M., 28 beds, F.), St. Charles' (26 beds, M.), St. Peter's (33 beds, M.), and St. Stephen's (24 beds, M., 26 beds, F.)—where each unit is supervised by specialists. St. Stephen's has been recognised by the Board of Control for the detention of mentally defective persons suffering from venereal disease. At the request of Queen Charlotte's Maternity Hospital in connexion with research work into puerperal fever the L.C.C. has consented to send and pay for five patients there. Plastic surgery has been transferred from St. James' (Balham) to Hammersmith. Graves's disease has a special unit at New End (Hampstead), where Mr. G. Scott Williamson and Dr. Innes H. Pearse will coöperate with other specialists in the treatment. Beds not exceeding ten have been set aside at St. Charles' (Notting Hill) for rheumatic cases sent by the Red Cross Clinic at Peto-place. The arrangements for treatment of enlarged tonsils and adenoids in school-children at voluntary hospitals and centres having proved insufficient, arrangements were made in 1930 for such cases at four L.C.C. general hospitals—viz., Lewisham, Mile End, Bethnal Green, and Norwood (Children). During the last year additional facilities have been made at St. Charles', St. John's (Wandsworth), and St. Leonard's. Finally an antenatal clinic has been established at St. Leonard's (Shoreditch), the only L.C.C. general hospital at which there were no facilities for such work.

[1] London County Council: Annual Report of the Council, 1931, Vol. II., Public Health—General Matters of Public Health, Main Drainage, and Housing. No. 2958. London: P. S. King and Son. Pp. 60. 1s.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MAY 27TH, 1933

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 16 (last week 30); scarlet fever, 2117; diphtheria, 789; enteric fever, 27; acute pneumonia (primary or influenzal), 897; puerperal fever, 34; puerperal pyrexia, 121; cerebro-spinal fever, 42; acute poliomyelitis, 6; polio-encephalitis, 1; encephalitis lethargica, 7; continued fever, 1 (Abingdon R.D., Berks); dysentery, 7; ophthalmia neonatorum, 107. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on May 30th–31st was as follows: Small-pox, 50 under treatment, 4 under observation (last week 57 and 2 respectively); scarlet fever, 1675; diphtheria,

1640; enteric fever, 13; measles, 419; whooping-cough, 395; puerperal fever, 22 (plus 5 babies); encephalitis lethargica, 232; poliomyelitis, 1; "other diseases," 309. At St. Margaret's Hospital [there were 12 babies (plus 5 mothers) with ophthalmia neonatorum.

Deaths.—In 118 great towns, including London, there was no death from small-pox, 2 (0) from enteric fever, 30 (1) from measles, 1 (1) from scarlet fever, 14 (3) from whooping-cough, 22 (5) from diphtheria, 30 (4) from diarrhœa and enteritis under two years, and 17 (2) from influenza. The figures in parentheses are those for London itself.

Barrow-in-Furness and Coventry each reported 1 death from enteric fever. Liverpool reported 11 fatal cases of measles, South Shields and Walsall each 3, Blackburn 2. Diphtheria was credited with 3 deaths at Leeds, 2 each at Huddersfield and Liverpool.

The number of stillbirths notified during the week was 284 (corresponding to a rate of 44 per 1000 total births), including 40 in London.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Whitsuntide Adjournment

ON Friday, June 2nd, the House of Commons adjourned for the Whitsuntide recess until Tuesday, June 13th. The House of Lords will meet again on the same day.

Remuneration for Road Injuries

In the House of Lords on May 30th Lord Moynihan was given leave to introduce a Bill to make provision for payment of remuneration to registered medical practitioners and hospitals for treatment rendered to persons injured through the use of motor vehicles on roads. The essential provisions of the Bill are these:—

A registered medical practitioner or hospital by whom, or in the out-patient department of which, emergency treatment is first rendered to any person in respect of bodily injury caused by or arising out of the use of a motor vehicle on a road shall be entitled to recover reasonable remuneration not exceeding the sum of £3 3*s.* from the owner of the motor vehicle or his personal representative in the same manner as if the treatment had been so rendered at the express request of the said owner.

In cases where the emergency treatment is so rendered by a registered medical practitioner, he shall in addition to the aforesaid remuneration be entitled to recover the sum of 6*d.* for every mile beyond the two miles necessarily travelled (to and fro) by him in complying with the call to render such treatment and shall be entitled thereto notwithstanding the fact that the person injured may have died before the registered medical practitioner shall have been able to render him any treatment.

In any case in which the injuries are caused by or arise out of the use of more than one motor vehicle on a road, the remuneration shall be recoverable from the owner of any one of the motor vehicles concerned; provided that where the person injured was in or on a motor vehicle, the owner of the motor vehicle in or on which the injured person was shall alone be liable to pay the said remuneration.

Within 72 hours after the emergency treatment has been rendered application for the remuneration therefor from the owner of the motor vehicle shall be made by sending such application in writing by post to the address of the said owner, together with a report in writing signed by the registered medical practitioner or by a member of the surgical or medical staff of the hospital by whom the emergency treatment was rendered and the circumstances in which it was rendered, and, unless the provisions of this section are complied with, no remuneration shall be recoverable from the owner of the motor vehicle or his personal representative.

If bodily injuries to any person are caused by or arise out of the use on a road of a motor vehicle which is in the public service of the Crown, the owner thereof shall be deemed to be the head of the department in the service of which the motor vehicle is used; and if legal proceedings are necessary for the recovery of the remuneration, that head of the department may be named as the defendant thereto and proceedings may be had against him in the same manner as if he were a private individual.

"Emergency treatment" is defined as such medical or surgical treatment as may properly be rendered by a competent medical practitioner who first deals with the case in respect of bodily injuries which require immediate attention, and includes such examination as may properly be made by such practitioner to ascertain the extent of the injuries.

The Act, if it becomes law as suggested on Jan. 1st, 1934, may be cited as the Road Traffic (Emergency Treatment) Act, 1933, and shall be construed as one with the Road Traffic Act, 1930.

Rent Restrictions Bill

In the House of Lords on Wednesday, May 30th, Viscount GAGE (Lord-in-Waiting) moved the second reading of the Rent and Mortgage Interest Restriction (Amendment) Bill, which has already passed the House of Commons. He said the measure was primarily an essential part of the Government's housing policy. Whatever they might do to remedy the shortage of small low-rented houses would be very largely offset if while they were providing new houses of that kind an equivalent number of such houses were escaping the pool. Yet that was precisely what was happening to-day. The very shortage of small houses in itself created a scarcity value, and when the small houses became decontrolled in many cases rents were increased by a considerable percentage. Since 1923 700,000 cheap new houses had been built in England and Wales, but 850,000 had been decontrolled. In this Bill the Government had endeavoured in the first place to meet the new housing situation, and in the second place to remedy certain grievances sometimes favouring the landlord and sometimes the tenant.

OPPOSITION TO DECONTROL

Lord MARLEY said that the reasons why he was not able to support this Bill, though it was largely based on the report of the committee over which he presided, were in the first place that the Government had departed in a vital particular from the recommendations of the committee, and, secondly, that the Government had definitely failed to take into account the statistical changes in the various aspects upon which the committee based their report that had occurred since the report was issued. It was true that the committee failed to foresee the tremendous changes that had since occurred in the cost of living, and the terrible depression which had hit so hard the working classes of the country. He was opposing the Bill first of all because there was included a provision for the complete decontrol of all houses in five years from the present date, which was definitely against the recommendation of the committee. Secondly, he thought the Government should have taken into account the changes in the economic condition of the working classes, and should have reduced the permitted increase of rent—viz., 40 per cent.—which had been retained in this Bill. Thirdly, he did not consider that the question of repairs had been adequately dealt with; he thought that there should have been a greater enforcement of repairs. In regard to slums, the Government had copied from another great country what they called a five-year plan. The Government's plan was preposterous nonsense.

POSITION GETTING WORSE

The problem, Lord Marley continued, was getting worse and, despite all the promises that had been made, there was no sign that the housing shortage would be met in five years time. If anything, it would be worse, and the sufferings of those unfortunate people whose rents would be raised would be largely increased by the Government's action. The fact that the position was getting worse was illustrated by the rise in out-relief. From August, 1931, to April, 1933, according to an answer given in the House of Commons a fortnight ago, the number of persons drawing out-relief had gone up from 900,000

to 1,300,000. How could those people pay this rent, except at the cost of insufficient food for those living in the houses? The medical officer for Deptford had pointed that out. He had said that families in receipt of public assistance could not supply themselves with the minimum diet laid down by the Ministry of Health after paying their rent. Malnutrition—that was to say, starvation—was increasing among the children of the poorest families. The chief medical officer of the Board of Education, in the last report he had issued, showed that the starvation of children in the poorest families had increased every year for the last five years: it was 9 per 1000 in 1927, 9·5 in 1929, and 11·2 in 1931. A recent report of the medical officer of health for Stockton had proved the connexion between high rents and starvation. The Stockton council established a slum-clearance scheme, built some very fine new houses, and moved a large number of families out of the slums into them. The death-rate of those families moved out of the slums went up 50 per cent. The council were horrified. They examined the question very carefully, and their medical officer reported that the only explanation was that previously the rent in the slums had been 4*s*. a week, whereas the rent of the new house was 8*s*. 10*d*. weekly, leaving 4*s*. 10*d*. less to be spent on food for the occupants of the houses.

DEFENCE OF THE ECCLESIASTICAL COMMISSIONERS

The Bishop of WINCHESTER said if that had been a debate on the slums he would have endorsed nearly everything that Lord Marley had said. From time to time attacks were made against the Ecclesiastical Commissioners for owning slum property. He had always asked for specific cases, and when they were given he had inquired into them personally. So far he had not found any cases of slum property under the complete control of the Commissioners. It was true there was slum property from which they drew ground rents which had been let on very long leases. They had no control over that property whatever. If they refused to draw the rents it would simply mean that the slum landlord would profit. He could assure the House that as soon as property which had been slum property came under the control of the Commissioners they used every effort in their power to turn that property into decent property, run on model lines.

The Bill was read a second time.

Coöperative Societies and Hospital Donations

On May 30th in the House of Commons the Finance Bill was further considered in Committee, and a new clause, moved by Mr. HORE-BELISHA (Financial Secretary to the Treasury), imposing a charge of income-tax on mutual profits of any company or society, was read a second time by 253 votes to 77. Mr. CAPE moved an amendment to exempt from income-tax any profit or surplus allocated by a society to hospitals, convalescent homes, or welfare centres. He said that he understood from the Chancellor of the Exchequer that donations by societies to such institutions would be on a similar basis to donations given by individuals or companies to similar institutions. But he understood that an individual or a company had to give a seven years' guarantee that the donation would be paid to these institutions before being able to claim exemption. If that was so, the case of these societies would not be met, because it was very difficult for a mutual trading society to give a guarantee for that length of time. The majority of these societies were run on democratic lines, and every half-year the meeting of members resolved what donations of this kind should be made. Having been a general secretary of one of these societies himself he could say that they generally paid something to the hospitals and convalescent homes in the locality every year for the benefit of their people. For three or four years they gave a fairly substantial grant to one or two hospitals, not only in their own area but outside as well, because of the specialist treatment given to their people, but they had found this year, owing to so many men being unemployed and their revenue having considerably decreased, that unfortunately they had to reduce their donations to the hospitals. The same thing applied to other coöperative societies. At the present time hospitals and similar institutions were generally maintained by public subscriptions and donations from workers and other generous-minded people, and the Chancellor of the Exchequer would be doing a great injustice to these institutions if he taxed the money which the coöperative societies and other organisations of the kind subscribed to those wonderful institutions, which were of such great benefit to the public.

ADDITIONAL BENEFITS OUT OF SURPLUS FUNDS

Mr. LOGAN said that it was important in hospital and convalescent treatment for a patient to be able to get out of his own neighbourhood, and a wonderful opportunity would be afforded if a big society with 6,500,000 members was in a position to provide additional benefits out of their surplus funds. Owing to the great amount of poverty many thousands of people would be turned off health insurance this year. Here was an opportunity for the coördination of the health services of the nation with the work that the coöperative society was able to do. They could out of the goodness of their hearts make good what ought to be done nationally. The expenditure under the poor-law would be relieved by the grants that could be given, not only for the relief of distress, but for convalescent treatment and after-care.

Mr. PRICE said that if contributions from coöperative societies to hospitals, and such institutions, were to be taxed he did not think that the House would support such a proposal. He appealed to the Chancellor of the Exchequer to give consideration to the matter, because it was bound to affect the finance of hospitals all over the country.

GRANTS FOR WELFARE OF EMPLOYEES NOT TO BE TAXED

After further debate Mr. CHAMBERLAIN (Chancellor of the Exchequer) said he could not accept the amendment. He hoped that the answer he would give to the points raised would satisfy hon. Members and reassure them as to the fears and anxieties which had been expressed. There had been some misunderstanding on two points. He had not said that coöperative societies in this respect would be in the same position as private individuals; he had said that they would be in the same position as trading companies, quite a different thing. The seven-year guarantee was something which applied only to subscriptions by private individuals; there was no question of the seven-year guarantee in considering what had to be allowed as a trading expense, or in computing the profits or gains of a trading company. To put the matter quite broadly and generally, if donations or subscriptions to hospitals and other institutions referred to in the amendment were made for the welfare of the employees of the coöperative society or company, they would be admissible as a trade expense. In the case of hospitals the question would be whether those hospitals were available for the welfare of the employees. If that was the case, subscriptions or donations would not be subject to taxation, although they might be taken out of the surplus of the society. But in the case of donations or subscriptions—for example, by a Yorkshire coöperative society to a hospital in London—one could hardly say that that was in connexion with employees of the society, and he did not think that they should be permitted as a trade expense.

Mr. LOGAN: Would the right hon. gentleman agree that in the case of a company or society in, say, Yorkshire or Lancashire subscribing to a specialist hospital to which they could send a patient, even though it might be in the south of England, that would be within his description?

Mr. CHAMBERLAIN: Certainly. It is not necessarily a question of the locality. The test is whether

it is for the welfare of the employees. It would, of course, in the ordinary case be a local hospital, but a subscription to a specialist hospital which was not necessarily in the locality would come within the exemption.

Sir S. ROBERTS: Would this remission be available to a landowner who employed carpenters and repairers on his property, in the case of a subscription by him to a local hospital?

Mr. CHAMBERLAIN: Not unless he is trading. It is not possible to give a general answer on this question, but I have endeavoured to make clear the general principles which govern the matter. No doubt there will be certain cases on the borderline, as it were, which would have to be examined beforehand.

DONATIONS TO HOSPITALS

Sir S. CRIPPS said he was afraid what Mr. Chamberlain had said would not in the least meet the point which the opposition desired to put forward. The right hon. gentleman had stressed quite rightly and accurately that all these various payments must be made on behalf of employees, and that, of course, was the existing law as regarded other companies. But coöperative societies were concerned with payments made on behalf of members, and not of employees, and the position as he saw it was this: a coöperative society had a surplus available, and in order to provide hospital accommodation for its members made a large donation to a local hospital. The members had the alternative of taking the money in dividend or of benefiting the hospital. Surely it was a proper and right use of the money on exactly the same basis as the use of the money for dividend. It was not possible for each member to make a contribution singly, nor would he get the same result if he did. The combined contribution from the members gave much greater security to the hospital, and enabled it to give them facilities which covered the members as a whole.

The amendment was rejected by 231 votes to 66.

Local Government Officers' Superannuation

Mr. SHAKESPEARE (Parliamentary Secretary to the Ministry of Health) presented the Local Government and Other Officers' Superannuation (Temporary Provisions) Bill, a measure to make provision for certain deductions from remuneration to be disregarded in the computation of contributions, pensions, and gratuities under enactments relating to the superannuation of persons employed or paid by local authorities and other bodies, and to give retrospective effect to such provision.

The Bill was read a first time.

HOUSE OF COMMONS

WEDNESDAY, MAY 31ST

Mental Hospitals and Nursing-homes: Use of Paraldehyde, Hyoscine, and Croton Oil

Mr. GROVES asked the Minister of Health if he would cause inquiry to be made into the question of the use of paraldehyde in mental institutions and nursing-homes; in how many instances hyoscine was administered as a sedative during the year 1931; and whether the use of croton oil had now been forbidden.—Sir E. HILTON YOUNG replied: During last year a Commissioner of the Board of Control made a special investigation of the use of sedatives in institutions for the insane in England and Wales, but the results are not yet available. For the year 1930 (the latest year for which statistics can at present be given), the average number of patients resident in institutions for the insane was 122,614, and the total quantity of hyoscine used was grs. 851. The use of croton oil has not been forbidden but the amount administered during 1930 was negligible.

Medical Treatment for Unemployed

Mr. SUTCLIFFE asked the Minister of Health how many local authorities in England had in operation schemes whereby the public assistance committees arranged for the medical treatment of those unemployed persons who had fallen out of health insurance; and whether he proposed to take any steps to advise local authorities as to the need for extending such arrangements after the end of the year, when a large number of unemployed persons would cease to be entitled to medical treatment under the Insurance Act.—Sir E. HILTON YOUNG replied: All public assistance authorities in England have arrangements in being for the medical relief of persons in need of it, and these arrangements are available for the persons to whom my hon. friend refers. As regards the second part of the question, I will consider whether any special communication to local authorities on this subject is necessary later in the year.

Lieut.-Colonel MOORE asked the Secretary of State for Scotland which local authorities in Scotland had made arrangements under which their public assistance committees provided medical treatment for unemployed persons who were not longer entitled to it under the Insurance Acts; and whether he intended to advise other local authorities as to the need for considering such arrangements after the end of the current year, in view of the fact that approximately 20,000 unemployed persons in Scotland would fall out of health insurance at that date.—Mr. SKELTON replied: No special arrangements are required for this purpose. All public assistance authorities in Scotland are bound to provide medical treatment for any poor person who is in need of it.

A Case of Concealment of Pregnancy

Mr. MCGOVERN asked the Secretary of State for Scotland if he was prepared to release Miss Helen Miller, who was sentenced to six months' imprisonment for concealment of pregnancy and later reduced at the appeal court to three months, in view of the fact that she had already been in prison for over three months and suffered mental and physical torture.—Mr. SKELTON replied: After careful consideration of all the circumstances of this case my right hon. friend regrets that he does not feel justified in advising any interference with the mitigated sentence of three months' imprisonment which was imposed by the High Court of Justiciary on May 26th.

FRIDAY, JUNE 2ND

Patent Medicine Advertisements in Stamp Books

Mr. SUTCLIFFE asked the Postmaster-General what had been the revenue of the Post Office from the advertisements of patent medicines in books of stamps issued by the Post Office during each of the past three years; whether it was proposed to continue such advertisements; and, if not, on what grounds.—Sir KINGSLEY WOOD replied: The revenue from advertisements of patent medicines in the stamp books is about £530 per annum, of which about £30 per annum is from advertisements of medicines for certain diseases referred to in paragraph 58 (2) of the report of the Select Committee on Patent Medicines. In view of the committee's recommendations, I have decided that any future contract for the exploitation of advertisement space in the stamp books shall prohibit acceptance by the contractor of any advertisement for a patent medicine, the terms of which suggest that the medicine has a beneficial effect in respect of the diseases listed.

ITALIAN HOSPITAL.—On behalf of a group of British admirers of Signor Mussolini Lord FitzAlan recently presented £1005 to the Italian Hospital in London for the endowment of a bed dedicated to the Duce.

THE DIXON MEMORIAL.—A meeting of subscribers to the memorial to the late Prof. W. E. Dixon was held at the house of the Royal Society of Medicine on June 1st. Sir William Willcox, presiding, recalled the deep regret felt by his colleagues and pupils at the untimely death some two years ago of Prof. Dixon. In December, 1931, he said, a small executive committee, with himself as chairman, Prof. Langdon Brown as treasurer, and Dr. Eric Holmes and Dr. Clifford Hoyle as secretaries, had been appointed to carry into effect a definite scheme, and, after consultation with Mrs. Dixon, it was decided that the memorial should take the form of a lecture on some subject of pharmacological or therapeutic interest. A fund was then opened, to be closed on May 1st, 1933, and at the recent general meeting of subscribers the following recommendations of the executive committee were unanimously adopted: that the trusteeship of the fund should be vested in the Royal Society of Medicine; that the council of the section of therapeutics and pharmacology of the Society should select the lecturer; and that the lecture should be delivered biennially or triennially. Prof. Langdon Brown was authorised to hand over to the Royal Society of Medicine the proceeds of the fund amounting to approximately £700, and it was stated that a report and balance sheet, with a list of subscribers, would be circulated later.

CORRESPONDENCE

THE MISAPPLICATION OF ARTIFICIAL PNEUMOTHORAX

To the Editor of THE LANCET

SIR,—I have read in your issue of May 27th, p. 1124, a discussion on this subject.

For the good of those who were present at the meeting—and particularly for the good of those, known to me, who came away feeling that the knowledge of what type of case of tuberculosis of the lungs was suitable for artificial pneumothorax treatment when sanatorium treatment had failed, was restricted to a very limited circle of doctors; for the good of your readers in general; for the good of all those members of our profession throughout the United Kingdom who are disappointed with the results of sanatorium treatment; for the good of the sufferers themselves, I beg of you to allow me to invite all those to read a paper which appeared in the April number of the *Quarterly Journal of Medicine*, by Dr. Cedric Shaw, on "The Value of Artificial Pneumothorax."

They will learn some facts culled from the study of the application of this form of treatment to 267 cases of pulmonary tuberculosis. The treatment was initiated and continued during six to eight weeks' stay (in a few instances longer still) in the Brompton Hospital mostly, and in a few other institutions; the cases were "re-filled" and kept under close observation during a number of years up to eight. They included all the various types of the disease as recognised by clinicians, Group I., Group II., Group III. cases, or early cases, more advanced cases, and far advanced cases, or infiltrational, consolidational, and excavational cases. Some were afebrile, and had a normal pulse and respiration-rate; others had very considerable fever, tachycardia, and some tachypnœa; very few, but some, were in the last stages of the disease and were treated by this method on their own supplication. Every one of these cases was proved to be suffering from pulmonary tuberculosis; either tubercle bacilli were present in the sputum and there were skiastic manifestations of infection of the parenchyma of the lung—such manifestations common to all infections of the lung (koinoskiastic) or special to tuberculous infections of the lung; or, the sputum being free from tubercle bacilli, there were changes in the lungs peculiar to tuberculous disease of them and not met with in any other infection (idioskiastic). In the treatment of these 267 cases, seeing that there were so many and different opinions as to the type of case to be so treated and as to how long previous unsuccessful treatment by sanatorium methods should last, no selection whatever was made, and artificial pneumothorax was accomplished in every one of them, with degrees of completeness, however, which differed very widely. A certain number of these cases after the accomplishment of artificial pneumothorax either spent a short holiday at the seaside or in the country before they returned to work, or returned to work at once without any sanatorium treatment at all; this latter group of cases was used as a control by which to measure whether the subsequent addition of sanatorium treatment to artificial pneumothorax treatment had any beneficial effect.

A copy of Dr. Cedric Shaw's paper was sent by me to a professional friend and colleague who has devoted himself to the study of tuberculosis of the lungs, especially to the sanatorium treatment of the disease; he has a very broad knowledge of the literature on the subject of tuberculosis and he is a great critic; he has described Dr. Cedric Shaw's paper as "the most serious and valuable one I have ever read on this subject." To further tempt the readers of this letter to study Dr. Cedric Shaw's paper I will quote some of the facts that he has established after a study of these 267 cases.

On comparing the percentages and rates of mortality of these 267 cases with those of the material which formed the substance of the Medical Research Council's Special Report, 1922, No. 67, Dr. Cedric Shaw found that the mortality of the early cases of the artificial pneumothorax experience was nil, whereas that of the sanatorium experience had been 23·1 per cent. for males and 13·5 per cent. for females; in the moderately advanced cases the mortality for male and female cases respectively of the artificial pneumothorax experience was 10·3 per cent. and 10·9 per cent., whereas for males and females in sanatorium experience it was 45·3 per cent. and 42·7 per cent.; finally, in the far advanced cases of the artificial pneumothorax experience the mortality for males and females was 46·9 per cent. and 48·0 per cent. respectively, whereas the mortality for males and females respectively in the sanatorium experience was 74·4 per cent. and 67·6 per cent.

For other important facts established by Dr. Cedric Shaw and for an opportunity to study the methods by which his figures were established, I refer the reader to the original paper. But I must conclude with the following statement which is a corollary to the interesting and valuable findings set out in Dr. Cedric Shaw's paper.

It is now proved beyond doubt that artificial pneumothorax treatment is so superior to the sanatorium treatment of tuberculosis of the lungs that the former should now become the treatment of choice, because artificial pneumothorax treatment even when applied to all types of the disease is in itself so slightly dangerous to life, and when accomplished is followed by a lessened percentage of rate of mortality, or even by none at all.

Further, its good effects in arresting the disease are more quickly, more certainly, and more permanently secured, and as a consequence more economically to the patient and to those who employ him or her, with greater comfort to himself or herself and those who are dependent upon him or her, and by reason of the rapid stoppage of expectoration, with greater safety for those susceptible children and other adults who live in his or her house. If the disease when discovered is present in both lungs, or after being discovered in one lung and being treated by artificial pneumothorax then develops in the other, bilateral artificial pneumothorax is available. The "re-filling" should be carried out for at least two years, and done in a specially surgically clean room, under strict medical, bacteriological, and skiagraphic control. The patient who is going through a phase of existence during which internal reinfection by tubercle bacilli (for some undetermined reason or other) is particularly liable to occur, can be treated also by any approved ancillary method, one of which is not sanatorium treatment provided since 1912 as the treatment for the poor by Act of Parliament. Sanatorium treatment has long been suspected to have no value whatever except an educational one, and Dr. Percy Stocks showed in 1926, and now also Dr. Cedric Shaw shows, that this suspicion has become an established fact.

To those raising the question what should be done in the future for those cases of tuberculosis of the lungs upon whom artificial pneumothorax is unaccomplishable, *the only answer is that they must not be allowed to occur*—they would not occur if the money saved by the abolition of useless sanatorium treatment were used to equip numerous institutes for the diagnosis and treatment of diseases of the chest, fully provided with bacteriological and skiagraphic departments, so that *all cases, acute or chronic, slight or severe, revealing pulmonary symptoms*, should be adequately dealt with.

I am, Sir, yours faithfully,

Harley-street, W., June 5th, 1933. H. BATTY SHAW.

PSYCHOTHERAPY AND MEDICAL PRACTICE

To the Editor of THE LANCET

SIR,—In your issue of May 27th you gave a full account of the inquiry held at the Ministry of Health on the place of psychotherapy in panel practice. Last week you published a letter from Dr. Thomson Brown which emphasised some of the difficulties of the problem. Concurrently the conference of the three universities on the medical curriculum is presumably considering the place of psychotherapy in medical education.

I would venture to submit the following considerations:

(1) Orthodox medicine to-day recognises the relationship of physiological and emotional reaction. It is prepared to approve of a pharmacological approach to emotional disturbance on the ground that this is scientific or objective and therefore respectable. It is not prepared to give more than a grudging recognition to the psychological approach to such conditions, still less is it prepared to teach the theory and technique of such treatment.

(2) Meanwhile civilisation is exacting an ever increasing toll of neurotic disorder and emotional maladjustment from the community. A certain proportion of these seek, and a few actually find, relief in psychotherapeutic treatment carried on by a very small number of qualified men and women who, thanks to their own enterprise and persistence, have acquired some reasonable competence in this field. A few betake themselves to unqualified healers. The vast majority must needs depend on the pharmacological help of a doctor who was taught that beyond the bedside manner and omniscient reassurance no psychotherapy is respectable.

May I suggest that there is here a field of human need with which the medical profession is determinedly refusing to cope? And may I further suggest that that refusal is due to failure to recognise an unpleasant truth? The unpleasant truth is that in a certain department of disease a therapy is called for which cannot be reduced to scientific categories. It is true that the psycho-analytic school of Freud has offered a theory and technique which, it is claimed, are purely scientific. But with this exception psychotherapy introduces the personal factor in general and in particular the factor of intuition.

Now it is obvious that scientific teaching and objective criteria are doomed to be inadequate, once this has been admitted. Allow me to suggest a simple analogy. Let us suppose that the engineering profession were called upon to provide engineers capable of dealing with certain musical problems. Various attitudes might be assumed, as for instance: (1) Music has nothing to do with engineering, therefore it is none of our business. (2) Acoustics have been reduced to an exact science; let the musicians submit to us their problems in acoustics. (3) If they want an engineer for a musical job let them seek out one who plays the violin or who sings in a choir. But the real objections would be: (*a*) We have no professors of engineering who know one note from another; and (*b*) if we cannot ourselves discriminate between the musical and unmusical engineers, we shall certainly have nothing to do with this new category.

And that, Sir, seems to me to be the position of psychotherapy to-day. It can never prosper until it has official recognition, and that recognition must depend on its inclusion in the medical curriculum. Nor can it prosper until the non-scientific aspects of aptitude and technique are recognised. Such recognition would not be a regression to medical obscurantism at all, but an approximation of medicine to philosophy through psychology that would be entirely progressive.

I am, Sir, yours faithfully,

H. CRICHTON-MILLER.

Institute of Medical Psychology, Torrington-place, W.C., June 6th, 1933.

EUGENIC STERILISATION IN GERMANY

To the Editor of THE LANCET

SIR,—The persons responsible for drafting the German Sterilisation Bill, described in your last issue (p. 1203), would seem to have advocated sexual sterilisation for two quite different reasons. In the first place, the measure is apparently intended to prevent the transmission of hereditary, physical, and mental defects. This is clearly exemplified in item 5 of the draft which relates to sufferers from hereditary deafness and dumbness, and also in item 10. In the second place, the measure would appear to aim at diminishing the number of socially burdensome people. Thus, according to items 1, 3, 4, 6, 7, and 8, people may apply to be sterilised who had not reached elementary school standards, who have required institutional treatment for epilepsy, who are permanent invalids within the meaning of the State Insurance Act, who are dependent on public assistance to a degree that is to be arbitrarily determined, who have been sentenced to imprisonment for varying terms, and who are deemed irresponsible for their actions. These conditions are not necessarily determined by heredity. Thus secondary aments, epileptics, many chronic invalids, many persons in receipt of public assistance (such as orphans), many criminals and irresponsible persons (such as sufferers from the after-effects of encephalitis lethargica) owe their disabilities to purely environmental causes. As long, however, as sterilisation is strictly maintained on a voluntary basis, there is no harm in its being applied according to these two different standards. But in the interests of clarity of thought, particularly as to the potentialities of sterilisation as a means of racial improvement, we should distinguish carefully between the achievements attainable respectively in the biological and economic spheres.

The principle of offering rewards—to be decided upon in Germany by the Ministers of Justice and Finance—to persons of bad stock to induce them to ask for sterilisation, has not been seriously discussed in this country, and superficially, at any rate, seems to be exposed to several criticisms. Thus, to promise early release from hospital to a patient recovering from a mental disorder, or from prison to a criminal on condition that consent is given to sterilisation, is a questionable procedure against which strong objections could be adduced. Further, the policy

of offering financial premiums—easily called bribes—to facilitate, in suitable cases, voluntary sterilisation, would have to be carried out with considerable caution, and might, in view of the religious opposition, be followed by unforeseen complications.

Lastly, it is noteworthy that in none of the items of Clause 1 of the draft Bill is there any specific mention of sterilisation being applied to foreign races, and I hope that Dr. Vellguth's recommendation that the measure be specifically imposed on Jews will not be adopted. If the German nation as a whole decides to discourage the propagation of Jews, that is its affair. But let it not be alleged, on the most dubious scientific grounds, that such a measure has a eugenic justification. It is very difficult to find satisfactory evidence as to the harmful effects of a moderate mixture of races as nearly allied as the Jewish, the Nordic, the Alpine, and the Mediterranean. Evidence has in fact been adduced that a moderate intermixture produces racially beneficial results. By most observers in this country it is believed that Germany has benefited rather than suffered culturally through the admixture of Jews in her population. In the interests of elementary justice it is to be sincerely hoped that in Germany sexual sterilisation will not be applied in a spirit of racial animosity; but if it is so utilised, may the motive not be misconstrued as either eugenic or economic in the senses advocated in the German draft Bill.

At present a departmental committee is in this country giving detailed consideration to the problem of sterilisation. It is as yet impossible to foretell what attitude it will adopt in its final report. Should the committee pronounce a cautiously favourable verdict that voluntary sterilisation has a limited application to carefully selected persons within certain general groups, it is to be hoped that public opinion will not run away with the idea that the adoption of such a policy will be the logical prelude to its misuse as an instrument of tyranny by racial or social majorities. No biological innovation of social significance is free from possibilities of abuse; and all such innovations are likely to find different legal expressions in different countries. If the principle of sterilisation is, with appropiate safeguards, adopted in this country, it can be taken as certain that it will be applied in a way that expresses the social consciousness which prevails in England rather than that which is now sweeping through Germany.

I am, Sir, yours faithfully,

C. P. BLACKER.

General Secretary, The Eugenics Society.
20, Grosvenor-gardens, S.W., June 6th, 1933.

JEJUNOSTOMY

To the Editor of THE LANCET

SIR,—Please allow me a brief reply to your annotator (p. 1190). It still seems to me a pity that this easy operation is "so seldom performed," and I venture to suggest to younger colleagues that they should try it. My results have been so good that I am glad to learn that Laméris came to the same conclusions. To the question, "Will a duodenal tube do all that jejunostomy can accomplish?" I should reply, "Certainly not!" Compare the calibre of a duodenal tube with the 14–16 F. catheter used in jejunostomy as regards the amount of nourishment which can be given. Food introduced into the duodenum is apt to regurgitate into the stomach and promotes the flow of gastric juice which physicians want to avoid. A jejunal tube is discreetly hidden by the clothing and does not prevent work. But the crucial question for any one of us, if we had an ulcer would be, "What is the relative mortality of jejunostomy and partial gastrectomy?" My answer would be (cf. Mayo), "Any surgeon—even an 'expert'—who wished to resect my stomach for ulcer would have to run much faster than I could!"

I am, Sir, yours faithfully,

Stoke-on-Trent, June 7th, 1933. HAROLD HARTLEY.

RELAPSE IN PULMONARY TUBERCULOSIS

To the Editor of THE LANCET

SIR,—Dr. Wingfield's suggestive communication to the Tuberculosis Association (THE LANCET, June 3rd, p. 1166) provokes further speculation. He attributes relapses in pulmonary tuberculosis largely to allergic hypersensitiveness, but suggests no cause for this. The following considerations will, I think, supply a reasonable explanation. The primitive defences against microbic invasion—inflammation and fever, with the associated blood changes—may be regarded as mainly non-specific; allergic sensitiveness and the formation of antibodies are largely specific, and result from actual contact with the microbe or its toxins. Antibody formation calls for more coördinated expenditure of energy than local allergic sensitiveness, and is likely to come later in an emergency.

From experience with tuberculin injections we know that by suitable progressive dosage very large doses are tolerated without either noticeable local or focal allergy, or fever. If, however, the dose is too rapidly increased the allergic response is excessive. So long as there is free humoral communication between an active focus in the lungs and the immunising organs (largely reticulo-endothelial and blood forming), antibody formation may increase in proportion to the increase in toxin formation, so that we may have no marked general symptoms in spite of much circulating toxin—a state of "compensation." If, however, the active focus is insulated by a shield of fibrous tissue or otherwise, toxins may increase in the focus without corresponding antibody formation. Then if a leak is sprung in the insulating capsule, a large dose of toxin escapes suddenly into circulation and a "flare up" results, because in the absence of sufficient antibody formation there are only the primitive means of defence available—i.e., allergic hypersensitiveness and fever.

Dr. Wingfield is disposed to confine the term "relapse" to those cases in which no obvious reason is discoverable. I would suggest that there is always a reason, even though this is often difficult to find, and that the commonest cause is a breach in the surrounding zone leading to a rather sudden increase in circulating toxin. Such a breach would perhaps be due to unnoticed mechanical causes. Dr. Walther, of Nordrach, used to insist on abstention from active arm exertion for two years after apparent recovery; and, excepting for very small lesions, I think it still remains a good rule. Periodical examinations as suggested by Dr. Wingfield would probably make the progressive occupational treatment of convalescents reasonably safe. Another safeguard would be periodical comparison of Mantoux tests with antibody tests. Whether, or when, tuberculin treatment would be advisable in relapse cases would depend on the response to rest and immobilisation, and some other circumstances. The obvious indication would be the existence of a growing lesion with low antibody formation.—I am, Sir, yours faithfully,

Farnham, June 5th, 1933. F. R. WALTERS.

AGRANULOCYTOSIS AND APLASIA

To the Editor of THE LANCET

SIR,—In your interesting leading article in the current issue (p. 1186) reference is made to the fact that the pathology of the bone-marrow is variable in agranulocytosis, either hyperplasia or aplasia of the myeloid elements being reported. You refer to the hypothesis of Fitzhugh and Krumbhaar that the myeloid hyperplasia is due to a "primary maturation arrest" rather than to a "primary aplasia," and you suggest that agranulocytosis is thereby allied to the megaloblastic anæmias rather than to aplastic anæmia; the aplasia of the myeloid elements which is sometimes found being accounted thereby failure "of the myeloid elements after a period of over-stimulation."

There are certain objections to this development of the theory of "primary maturation arrest." There is no evidence that agranulocytosis is preceded by any over-stimulation of the myeloid elements. There is no good evidence, clinical or experimental, that such over-stimulation will produce aplasia. All the evidence is against it. If it occurred, one would expect agranulocytosis to be the appointed and invariable end of myelogenous leukæmia—whereas it is not. Moreover, C. A. Doan (Jour. Amer. Med. Assoc., 1932, xcix., 194) attempted experimentally to produce myeloid aplasia in two rabbits by large daily injections of nucleotide (up to 1 g. daily) for periods of 102 and 116 days respectively. He produced enormous myeloid hyperplasia and extramedullary myelopoiesis but no aplasia.

Some other reasons must be sought for these two types of bone-marrow pathology in agranulocytosis, and it is found in a consideration of comparable disorders of the erythron. Witts showed very clearly in his Goulstonian lectures that various factors are necessary for the maturation of the red cell, and that, if these factors are missing, development is arrested at certain stages with characteristic peripheral blood pictures. For example, if, in the absence of some unknown factor, blood formation is not advanced beyond the reticulo-endothelial stage, aplastic anæmia results; in the absence of the "pernicious anæmia" factor, red cell maturation is arrested at the megaloblastic stage—and so on. It is not speculative to suggest that these same ideas apply to myelopoiesis; in some case of agranulocytosis, myelopoiesis is arrested at the reticulo-endothelial stage with a bone-marrow picture of aplasia; in other cases it is arrested at a myeloid stage with myeloid hyperplasia in the bone-marrow. That these two types may eventually be differentiated by blood examinations and by their response to nucleotide is suggested by some of Doan's investigations. One would expect nucleotide to fail in the aplastic type, as Doan reports it to be valueless in the neutropenia of aplastic anæmia.

Graham Lescher and I have already suggested (Quart. Jour. Med., 1932, xxv., 434) that this same maturation arrest may explain some of the present difficulties with regard to purpura hæmorrhagica. Here again, although platelets are grossly reduced in the circulating blood, the bone-marrow may show either megakaryocyte hyperplasia or aplasia. It was suggested that in the one group there is defective formation of megakaryocytes from the reticulo-endothelium, and in the second group there is defective splitting off of platelets from the megakaryocyte. These two groups may explain the conflicting reports of the effect of splenectomy on the numbers of circulating platelets in purpura hæmorrhagica. Our hypothesis, then, is still a profitable one: there is one variety of agranulocytosis and one variety of purpura hæmorrhagica allied to aplastic anæmia—for in all three the formation of blood-cells is arrested at the reticulo-endothelial stage by the absence of certain factors—probably endocrine. While two further groups, not yet certainly defined, are comparable to megaloblastic anæmia; in this last there is a circulating anæmia in spite of proliferation of the megaloblast, hyperplasia of the megakaryocytes with a peripheral thrombocytopenia and a myeloid hyperplasia with a peripheral agranulocytosis.

I am, Sir, yours faithfully,

Derby, June 4th, 1933. DOUGLAS HUBBLE.

MEDICAL NEWS

University of London

At recent examinations the following candidates were successful:—

THIRD EXAMINATION FOR M.B., B.S.

Honours.—S. G. Browne (*c,d*), King's Coll. Hosp.; A. L. Eyre-Brook (*d*), Univ. of Bristol; C. C. Harvey (*e*), Univ. Coll., Cardiff; Mary H. Mayeur (*e*), Roy. Free Hosp.; R. S. Ogborn (*e*), Univ. Coll. Hosp.; E. J. Smith (*a,c,d*), King's Coll. Hosp.; Albertine L. Winner (*a,c,d, University Medal*); and Freida Yarmalinsky (*a,d*), Univ. Coll. Hosp.

(*a*) distinguished in medicine. (*c*) distinguished in forensic medicine and hygiene. (*d*) distinguished in surgery. (*e*) distinguished in obstetrics and gynæcology.

Pass.—G. N. Barker, St. Thomas's Hosp.; Mary L. Birkett, Roy. Free Hosp.; B. F. M. Bond, Westminster Hosp.; Ethel D. M. Brook, Roy. Free Hosp.; A. I. P. Brown, London Hosp.; Hilda M. Brown, Roy. Free Hosp.; H. W. Burge, King's Coll. Hosp.; G. N. Carrell, Guy's Hosp.; H. F. Chard, St. Thomas's Hosp.; E. F. Claridge, London Hosp.; Kitty K. Cohen, Univ. Coll. Hosp.; D. M. Cooper, St. Thomas's Hosp.; M. G. H. Cooray, Univ. Coll. Hosp.; G. J. Cunningham, St. Bart.'s Hosp.; T. J. Davies, London Hosp.; N. E. D. de Silva, Univ. Coll. Hosp.; M. E. Disney, London Hosp.; J. C. G. Evans, St. Thomas's Hosp.; T. J. Evans, Univ. Coll. Cardiff and Middlesex Hosp.; G. G. Farrington, St. Thomas's Hosp.; R. F. Fidler, Middlesex Hosp.; K. J. Gilchrist, Guy's Hosp.; Betty F. Goldsmith, Mary E. Gould, and Lucy W. Grace, Roy. Free Hosp.; R. D. Green, London Hosp.; L. J. Hackett, St. Bart.'s Hosp.; J. L. Hamilton-Paterson, Univ. Coll. Hosp.; C. B. Hinkley, St. Thomas's Hosp.; Constance M. Hoare, King's Coll. Hosp.; T. G. Hudson, St. Thomas's Hosp.; W. H. Hughes, St. Mary's Hosp.; D. H. Irish, Guy's Hosp.; J. F. Jarvis, D. E. V. Jones, and G. E. Kerr, King's Coll. Hosp.; Beatrice Lewis and J. O. McDonagh, Univ. Coll. Hosp.; B. M. McOwan and H. A. Magnus, St. Bart.'s Hosp.; L. H. Mottet, Univ. Coll. Hosp.; Roy Parkinson, London Hosp.; G. H. Pearce and C. F. Price, Univ. Coll. Hosp.; Hugh Ramsay, Middlesex Hosp.; J. F. Rivers-Moore, London Hosp.; M. H. P. Sayers, St. Thomas's Hosp.; Emily L. Simon, Roy. Free Hosp.; V. C. Snell, St. Bart.'s Hosp.; J. R. C. Spicer, Guy's Hosp.; Muriel H. Steven, King's Coll. Hosp.; A. M. Stewart-Wallace, Univ. Coll. Hosp.; G. E. Thomas, Univ. of Liverp.; Winifred P. Thomas, Univ. Coll. Hosp.; R. S. Trueman and A. G. McD. Weddell, St. Bart.'s Hosp.; Ivor Whittington, St. George's Hosp.; Gwladys M. Williams, Roy. Free Hosp.; H. M. Williams, St. Bart.'s Hosp.; R. F. Winckworth, St. Thomas's Hosp.; E. J. S. Woolley, St. George's Hosp.; and Tamsin M. Wynter, Roy. Free Hosp.

The following students have passed in one of the two groups of subjects:—

Group I.—Dorothy C. J. Cookson, Roy. Free Hosp.; E. J. Dennison, St. Thomas's Hosp.; S. T. Failla, London Hosp.; Nancie I. Faux, Roy. Free Hosp.; Vladimir Glass, Univ. Coll. Hosp.; Nora J. Gould, Roy. Free Hosp.; G. J. Griffiths, Westminster Hosp.; R. V. Harris, St. Bart.'s Hosp.; H. R. Hartnell, London Hosp.; Anne E. M. Herbert, King's Coll. Hosp.; Nancy G. Howell, Univ. Coll. Hosp.; Maurice Lee and G. A. Mais, St. Thomas's Hosp.; K. R. Masani, Univ. Coll. Hosp.; R. J. G. Morrison, St. Bart.'s Hosp.; A. H. W. Roffey, King's Coll. Hosp.; Picotee E. Rose-Innes, Roy. Free Hosp.; G. C. Sawyer, Guy's Hosp.; R. H. D. Short and Elizabeth O. Smith, Univ. Coll. Hosp.; Cicely Steer and Mary G. Tate, Roy. Free Hosp.; Ian Taylor, King's Coll. Hosp.; and R. B. D. Wright, St. Mary's Hosp.

Group II.—Herbert Agar, Univ. of Leeds; I. G. Anderson, King's Coll. Hosp.; A. J. W. Beard, St. Bart.'s Hosp.; D. McN. Beaugié, Univ. of Glasgow; J. G. R. Clarke, St. Thomas's Hosp.; Philip Cohen, St. Bart.'s Hosp.; R. T. Elven, Guy's Hosp.; W. F. T. George, St. Bart.'s Hosp.; A. C. Howard, Univ. Coll. Hosp.; W. A. Hyslop, London Hosp.; J. G. H. Ince, Univ. Coll. Hosp.; Maisie F. James, Roy. Free Hosp.; C. McK. Johnston, King's Coll. Hosp.; W. W. Jones, Guy's Hosp.; A. B. King, Univ. Coll. Hosp.; Herbert Kirman, King's

Coll. Hosp.; J. J. McCann, St. Thomas's Hosp.; Rosamund M. I. Mackay, Univ. Coll. Hosp.; J. D. Macleod, St. Thomas's Hosp.; J. A. W. Musson, Middlesex Hosp.; A. G. Potts, Guy's Hosp.; J. P. Raban, Middlesex Hosp.; A. M. Rackow, King's Coll. Hosp.; F. W. Roberts, Middlesex Hosp.; G. H. Stuart, Univ. Coll. Hosp.; D. M. Thomson, St. Bart.'s Hosp.; and W. N. P. Wakeley, King's Coll. Hosp.

University of Wales

At recent examinations the following candidates were successful:—

TUBERCULOUS DISEASES DIPLOMA

P. P. Bhavnagri, M.B. Bombay; E. F. J. Dunlop, M.B. Edin.; Joan Goodger; M. S. Kavarana, M.B. Bombay; and K. K. Pillai, M.B. Madras.

Royal Faculty of Physicians and Surgeons of Glasgow

At a monthly meeting of the faculty, held on June 5th, the following were admitted to the Fellowship: Charles Hurwitz, M.B., of South Africa, and Alexander Henderson Imrie, M.B., Robert William Hastings Jarvie, M.B., and James Little Rennie, M.B., of Glasgow.

Physiological Society

A meeting of this society will be held to-day, Saturday, June 10th, in the physiological laboratory of the School of Medicine, Leeds, at 3 P.M. On July 1st a meeting will be held in Oxford.

Research Defence Society

Major-General Sir Leonard Rogers, F.R.S., will deliver the seventh Stephen Paget memorial lecture at the London School of Hygiene and Tropical Medicine, Keppel-street, London, W.C., on June 22nd, at 3 P.M. He will speak on the saving in life and suffering, due to medical and veterinary research, with special reference to the tropics. Lord Lamington, president of the society, will preside.

St. Thomas's Hospital Medical School

Sir Percy Greenaway, Lord Mayor of London, will present the prizes on June 27th, at 3 P.M., in the Governor's Hall of the hospital (entrance Lambeth Palace-road).

Eugenics Society

At a meeting of this society to be held at the rooms of the Linnean Society, Burlington House, Piccadilly, London, W., on June 20th at 5.30 P.M., Dr. K. B. Aikman will speak on Race Mixture. Prof. R. Ruggles Gates will preside.

Biochemical Society

The next meeting of this society will be held to-day, Saturday, June 10th, at 2.30 P.M., in the research laboratories of the Distillers Company, Ltd., Great Burgh, Epsom, Surrey, when papers read will include communications on the Chemistry of Glycogen, by D. J. Bell and F. G. Young; Further Data on the New Metabolism Hormone, by C. Funk; and Influence of Cod-liver Oil on the Hæmolytic Complement of Human Beings, by T. W. B. Osborn.

London and Counties Medical Protection Society

At the annual general meeting, held on May 31st, the President, Sir John Rose Bradford, moved the adoption of the annual report which was the subject of a leading article in THE LANCET of May 27th (p. 1137). The past year, he said, had been the busiest of any in his experience, not only on the medical side, but also on behalf of the dental members of the society. Membership had increased by 439, but he still felt it desirable to warn practitioners of the great risk they took in not joining a defence society immediately on qualification. Expenses during the year had been high, although the year had been a successful one from the legal point of view, a considerable number of cases having been fought successfully in the courts. There were, however, a large number of disputes which it was not desirable to bring into court if it could be avoided. In one case, which had been lost, it was shown that the surgeon did his best for the patient—he saved his life in fact—but the jury awarded damages against the surgeon. During the year there had been a series of cases in which after dental extraction a tooth had lodged in the lung. Some of these had been satisfactorily settled; others not. He recorded with feeling the services of Mr. Portway who was retiring after holding office for 40 years. Dr R. L. Guthrie in presenting the statement of accounts, remarked on the satisfactory financial position. There was a total appreciation of some £8000 on the value of securities. The cost per member had amounted to £1 0s. 10½d., higher than during the last three years, but lower than in 1927 and 1928. Dr. C. O. Hawthorne thought care might be taken to see that a copy of the report was put in the hands of every teacher of forensic medicine throughout the country, for no one had a better opportunity of bringing before medical students the risks which their profession entails and the way in which those risks may be met. Sir John Rose Bradford was re-elected president and Dr. Guthrie treasurer.

National Hospital for Diseases of the Heart

On Tuesday, June 13th, at 5 P.M., Dr. John Hay, professor of medicine in the University of Liverpool, will deliver the St. Cyres lecture entitled Some Observations on Coronary Thrombosis.

Medical Baths at Hastings

On May 27th the second section of the White Rock Baths was opened by Sir Humphry Rolleston. Nearly £100,000 has now been spent on these baths. The new section contains a medical department, and seaweed, anturic, foam, and pine baths will now be available.

University of Bristol

Prof. Geoffrey Hadfield, M.P., F.R.C.P., has accepted an invitation to fill the chair of pathology shortly to be vacated by Prof. I. Walker Hall.

Prof. Hadfield, who is 44 years of age, received his medical education at St. Bartholomew's Medical College, qualifying M.B., B.S. Lond. in 1911. After holding house appointments at St. Bartholomew's Hospital and the Metropolitan Hospital he became medical registrar and assistant pathologist to the Dreadnought Hospital, Greenwich, in 1912. In 1913 he took his M.D. (gold medal). During the war he held the rank of captain in the R.A.M.C., and served in France and Gallipoli as specialist in pathology. After the war Dr. Hadfield was appointed pathologist to the Bristol General Hospital, and demonstrator of pathology at the University of Bristol, leaving this post on his appointment as pathologist to the chair of pathology in the University of London, which he now holds at the Royal Free Hospital. Prof. Hadfield's publications include a book on Recent Advances in Pathology, jointly with Dr. L. P. Garrod, and communications to medical journals on neuropathology, tumour formation, and cardiac infections.

The following appointments have also been made: J. W. de Witt G. Thornton, B.M., lecturer in pharmacology; J. D. A. Gray, M.B., F.R.C.P. Edin., of the University of Liverpool, senior pathological officer in the department of preventive medicine.

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
THURSDAY, June 15th.—5 P.M., DERMATOLOGY. (Cases at 4 P.M.) Dr. R. Klaber: Nævus Elasticus.
FRIDAY.—8.15 P.M., OBSTETRICS AND GYNÆCOLOGY. Discussion: Uterine Inertia with Special Reference to Treatment. The discussion will be divided into three parts relative to the stages of labour. Openers: First stage: Mr. A. C. Bell, Mr. C. M. Marshall, Mr. R. G. Maliphant, and Mr. R. Newton. Second stage: Mr. A. J. Wrigley. Third stage: Miss B. Turner.
SATURDAY.—DISEASE IN CHILDREN. Provincial Meeting at the Children's Hospital at Birmingham. 2.30 P.M., Demonstration of Cases by Members of the Staff.

SOUTH-WEST LONDON MEDICAL SOCIETY.
WEDNESDAY, June 14th.—9 P.M. (at the Bolingbroke Hospital, Bolingbroke-grove, Wandsworth Common). Sir D'Arcy Power: Some Great English Surgeons. (Bolingbroke lecture.)

PADDINGTON MEDICAL SOCIETY.
TUESDAY, June 13th.—9 P.M. (Great Western Royal Hotel, Paddington), Annual General Meeting. Dr. G. de Swietochowski: valedictory address.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, Manson House, Portland-place.
THURSDAY, June 15th.—8.15 P.M., Annual General Meeting. Lieut.-Colonel H. W. Acton, I.M.S.: Carriers of Entamœba Histolytica and their Treatment. Demonstration at 7.45 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.
TUESDAY, June 13th, and following THURSDAY.—Prof. E. Mellanby: Nutrition and Disease—the Interaction of Clinical and Experimental Investigations. (Croonian lectures.)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, June 12th, to SATURDAY, June 17th.—LONDON LOCK HOSPITAL, Dean-street, Soho. Course in Venereal Disease. Afternoons and evenings.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. Wed., 5 P.M., Dr. C. P. Symonds: The Disturbance of Cerebral Function in Head Injury. (For advanced post-graduates.)—PRINCE OF WALES'S HOSPITAL, Tottenham. Course in Medicine, Surgery, and the Specialties. All day.—CITY OF LONDON HOSPITAL, Victoria Park. A Course in Diseases of the Chest. All day.—ROYAL FREE HOSPITAL, Gray's Inn-road. Frid., 5 P.M., Antenatal Treatment.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith-road, W.
MONDAY, June 12th.—10 A.M., Medical Wards, Skin Clinic. 11 A.M., Surgical Wards. 2 P.M., Operations, Medical, Surgical, Eye, and Gynæcological Clinics. 4.15 P.M., Mr. Simmonds: Fractures of Lower Limb.

TUESDAY.—10 A.M., Medical Wards. 11 A.M., Surgical Demonstration. 2 P.M., Operations, Medical, Surgical, and Throat, Nose, and Ear Clinics. 4.15 P.M., Mr. Green-Armytage: Puerperal Complications.
WEDNESDAY.—10.30 A.M., Medical and Children's Wards, Children's Clinic. 2 P.M., Gynæcological Operations, Medical, Surgical, and Eye Clinics.
THURSDAY.—10 A.M., Neurological Clinic. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical, Surgical, Eye, and Genito-urinary Clinics.
FRIDAY.—10 A.M., Skin Clinic. 12 noon, lecture on Treatment. 2 P.M., Operations, Medical, Surgical, and Throat, Nose, and Ear Clinics. 4.15 P.M., Mr. Vlasto: Demonstration of Throat Cases.
SATURDAY.—10 A.M., Medical Wards, Children's and Surgical Clinics. Surgical Wards.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James's Hospital, Ouseley-road, Balham, S.W.
WEDNESDAY, June 14th.—4 P.M., Mr. V. Zachary Cope: Demonstration of Surgical Cases.

ST. PETER'S HOSPITAL FOR STONE, Henrietta-street, W.C.
WEDNESDAY, June 14th.—3 P.M., Mr. Swift Joly: Diagnosis of Kidney Tumours.

NATIONAL HOSPITAL, Queen-square, W.C.
TUESDAY, June 13th.—6 P.M., Dr. Martin: Polyneuritis.
THURSDAY.—6 P.M., Dr. Walshe: Diseases of the Pituitary.

ST. MARK'S HOSPITAL, City-road, E.C.
THURSDAY, June 15th.—4.30 P.M., Mr. E. T. C. Milligan: Pruritus Ani.

ST. PAUL'S HOSPITAL, Endell-street, W.C.
WEDNESDAY, June 14th.—4.30 P.M., Mr. Stanford Cade: Radiation Treatment in Malignant Disease of the Bladder.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street.
TUESDAY, June 13th.—5 P.M., Prof. John Hay: Some Observations on Coronary Thrombosis. (St. Cyres lecture.)

ROYAL SANITARY INSTITUTE.
JUNE 17th to 24th.—Congress at Blackpool.

INSTITUTE OF MEDICAL PSYCHOLOGY, 6, Torrington-place, W.C.
MONDAY, June 12th, to SATURDAY.—Course on Approach to the Psychoneuroses. (First week.)

Appointments

LAKE, H. A., M.D. Durh., has been appointed Certifying Surgeon under the Factory and Workshop Acts for Beaminster, Dorset.

London County Council Hospital Staff.—The following appointments, promotions, and transfers are announced. A.M.O. (I.) and (II.) = assistant medical officer, Grades I. and II. Temp. = temporary.

CARTER, H., M.B., F.R.C.S., senior A.M.O. (I.), St. Leonard's.
TANNER, N. C., M.B., F.R.C.S., senior A.M.O. (II.), Highgate.
HUSS, C. B., M.B., A.M.O. (I.), Paddington.
FAIRY, J., M.D., A.M.O. (I.), Lambeth.
MURPHY, F. D., M.B., A.M.O. (I.), Lambeth.
EDWARDS, L. M., M.B., A.M.O. (I.), Paddington.
ROBB, D. C., M.B., A.M.O. (I.), St. Pancras.
SEELEY, C., L.M.S.S.A., A.M.O. (I.), Queen Mary's Hospital for Children, Carshalton.
CAIRNS, D. R., M.B., A.M.O. (I.), St. Peter's (Whitechapel).
ADAM, G. A. H., M.B., A.M.O. (II.), Hackney.
HOLMES, J. McD., M.B., A.M.O. (II.), Lambeth.
PARKER, J. L., M.B., A.M.O. (II.), Paddington.
HART, A. E. T., M.R.C.S., A.M.O. (II.), St. Mary Abbots.
THOMSON, A. L., M.B., A.M.O. (II.), St. Nicholas's.
O'REILLY, T. J., M.D., A.M.O. (II.), Mile End.
O'SULLIVAN, J. A., M.B., A.M.O. (II.), City of London Institution.
QUINN, T. R., M.B., A.M.O. (II.), Holborn and Finsbury Institution.
AVERY, J. C., M.B., A.M.O. (II.), Fulham.
MITCHELL, J. F., M.B., A.M.O. (II.), New End.
KEITH, E. M., M.B., Temp. A.M.O., St. Andrew's.
OLDFIELD, J. M., M.R.C.S., House physician, St. Olave's.

Vacancies

For further information refer to the advertisement columns

Altrincham General Hospital.—Jun. H.S. At rate of £120.
Ashton-under-Lyne District Infirmary.—H.S. At rate of £150.
Bethnal Green Hospital, Cambridge-road, E.—Asst. M.O. £350.
Birkenhead Municipal Hospital.—Deputy Med. Supt. £450.
Birmingham City Mental Hospital.—Jun. Asst. M.O. £350.
Blackburn Royal Infirmary.—Fourth H.S. £150–£200.
Bradford Royal Eye and Ear Hospital.—Jun. H.S. £150.
Bury County Borough.—Asst. M.O.H., Asst. School M.O., and Asst. Tuber. O. £500.
Cambridge, Addenbrooke's Hospital.—Res. Anæsthetist and Emergency Officer. At rate of £130.
Cardiff Royal Infirmary.—H.S. At rate of £50.
Charing Cross Hospital, W.C.—Hon. Clin. Asst. to Dermatological Dept.
Chester Royal Infirmary.—H.P. £150.
Constance-road Institution, Dulwich, S.E.—Asst. M.O. £250.
Coventry and Warwickshire Hospital.—Res. H.S. and Cas. O. £125.
Derbyshire C.C.—Asst. Maternity and Child Welfare M.O. £600.
Durham C.C.—Asst. Welfare M.O. £500.
Durham County Mental Hospital.—Asst. M.O. £350.
Edinburgh, Eastern General Hospital, Seafield-street, Leith.—Res. H.P. At rate of £100.
Edmonton, North Middlesex County Hospital.—Res. Physician. £600.
Evelina Hospital for Sick Children, Southwark, S.E.—H.P. At rate of £120.
Fulham Hospital, St. Dunstan's-road, Hammersmith, W.—Clin. Asst. At rate of £100.
Golden-square Throat, Nose, and Ear Hospital, W.—H.S. £100.
Hampstead General and N.W. London Hospital, N.W.—H.S. At rate of £100.
Hendon, King Edward Memorial Hospital, N.W.—Hon. Radiol.
Hospital for Sick Children, Great Ormond-street, W.C.—In-patient Med. Reg. £300. Two Out-patient Med. Regs. Each £250. Three Out-patient Anæsthetists. Each £50.
Hull Royal Infirmary.—Third H.S. At rate of £150.
Leeds General Infirmary.—Hon. Asst. Surg. Also Two Jun. Receiving Room Officers. At rate of £100.
Leeds, Ida and Robert Arthington Hospital.—Res. M.O. At rate of £60.
Lincoln County Hospital.—H.S. At rate of £150.
Liphook, Hants, King George's Sanatorium for Sailors.—Asst. M.O. At rate of £200.
Liverpool, Waterloo and District General Hospital.—H.S. £100.
London University.—External Examinerships.
Manchester, Ancoats Hospital.—H.P. At rate of £100.
Manchester, County Mental Hospital, Prestwich.—Locum Tenens. £7 7s. per week.
Manchester Royal Eye Hospital.—Jun. H.S. £120.
National Hospital for Diseases of the Heart, Westmoreland-street, W.—Physician to Out-patients.
Northampton General Hospital.—Hon. H.S. Also H.S. for Ear, Nose, and Throat Dept. At rate of £150.
Norwich, Jenny Lind Hospital for Children.—Res. M.O. £120.
Norwich, Norfolk and Norwich Hospital.—H.S. and H.P. Each £120.
Nottingham Children's Hospital.—Res. H.S. At rate of £150.
Nottingham General Dispensary.—Res. Surgeon. £250.
Nottinghamshire C. C. Education Committee.—Asst. School M.O. £500.
Oxford, Radcliffe Infirmary and County Hospital.—Housekeeper Dietitian. £250.
Plymouth, South Devon and East Cornwall Hospital.—H.P. At rate of £120.
Preston and County of Lancaster Royal Infirmary.—H.S. £150.
Princess Beatrice Hospital, Richmond-road, Earl's Court, S.W.—Res. M.O. At rate of £110.
Princess Elizabeth of York Hospital for Children, Shadwell, E.—H.S. At rate of £125.
Royal Naval Dental Service.—Three Dental Officers for Royal Navy.
Ryde, Royal Isle of Wight County Hospital.—Res. H.S. £180.
St. Peter's Hospital for Stone, &c., Covent Garden, W.C.—Clin. Assts.
Sheffield Children's Hospital.—H.P. and H.S. Each at rate of £100.
Southampton, Royal South Hants and Southampton Hospital.—H.P. and Res. Anæsthetist. Each at rate of £150.
Southend-on-Sea General Hospital.—Cas. O. At rate of £150.
Warrington Infirmary and Dispensary.—Jun. H.S. £175.
West Bromwich, Hallam Hospital.—Sen. Res. M.O. £350.
West End Hospital for Nervous Diseases, Welbeck-street, W.—Hon. Asst. Ophthalmic Surgeon.
West London Hospital, Hammersmith-road, W.—H.P. Two H.S.'s, and Res. Anæsthetist. Each at rate of £100.
Wigan, Royal Infirmary.—H.S. At rate of £150.
Willesden General Hospital, N.W.—Cas. O. and H.S. At rate of £100.
Wolverhampton, Royal Hospital.—H.S. At rate of £100.
Woolwich and District War Memorial Hospital, Shooters Hill, S.E.—H.P. and H.S. Each at rate of £100.
York County Hospital.—H.P. £150.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Camelford (Cornwall) and at Torquay (Devon).

Births, Marriages, and Deaths

BIRTHS

GOODING.—On June 1st, 1933, at "Dhoonglen," Ditton-road, Surbiton, Surrey, to Margaret (née Protheroe), wife of Stanley Gooding, M.D.,—a son.
HANCOCK.—On May 30th, at Portland-place, W., the wife of Dr. P. E. Thompson Hancock, of a daughter.

MARRIAGES

FITZGIBBON—HARRISON.—On May 4th, at St. Albans, G. M. FitzGibbon, M.D. Lond., F.R.C.S. Eng., of 52, Pembroke-road, Clifton, Bristol, to L. Priscilla Harrison, M.B., B.S. Lond., daughter of Mr. and Mrs. F. F. Harrison, of Palfrey Close Cottage, St. Albans.
GAISFORD—GUPPY.—On June 1st, at St. Ives, Cornwall, Wilfrid F. Gaisford, M.D., M.R.C.P., of Rodney-street, Liverpool, to Mary, eldest daughter of Capt. and Mrs. Guppy, of St. Ives, Cornwall.

DEATHS

SHAW-MACKENZIE.—On June 1st, suddenly, John Alexander Shaw-Mackenzie, M.D., of Newhall, Balblair, N.B.
STALLARD.—On May 29th, Harry Stallard, T.D., M.R.C.S., L.R.C.P., Major, R.A.M.C. (T.) (retd.), of The Cottage, Burwash Common, Sussex, aged 66.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

MEDICAL ASPECTS OF THE MOUNT EVEREST EXPEDITION, 1933

BY RAYMOND GREENE, M.A., B.M., B.CH. OXF.

SCHORSTEIN RESEARCH FELLOW, OXFORD UNIVERSITY; MEDICAL OFFICER, KAMET EXPEDITION, 1931; SENIOR MEDICAL OFFICER TO THE EXPEDITION

AND

WILLIAM W. MCLEAN, M.A., M.D. CAMB.

MEDICAL OFFICER TO THE EXPEDITION

I. INTRODUCTORY

As medical officers to the Everest Expedition, 1933, it was our duty to advise the selection committee on the choice of personnel and the equipment committee on the choice of food. The expedition having started, our function is the supervision of the health of its members on the march and on the mountain.

A thorough examination of each European member of the expedition was conducted at the central medical establishment of the Royal Air Force and afterwards by Dr. Claude Wilson, a former president of the Alpine Club. The results of each examination were discussed at meetings between the Air Force specialists and the senior medical officer of the expedition. Unfortunately, no tests have ever been devised whereby at sea-level it is possible to judge a high climber's most important medical characteristic—his power of acclimatisation to great altitudes. It would, indeed, be possible to imprison a candidate in a decompression chamber for several weeks and to observe his reactions, the composition of his alveolar air, and the changes in his red cell count. But the cost would be prohibitive and the conditions too far removed from the natural. Moreover, few candidates could spae the time. Leaving aside perforce his most important point, a party medically almost unexceptionable was chosen.

The same care cannot be exercised in the examination of some 80 porters, but as far as possible the unfit were excluded. The prevailing ailments among the Sherpas and Bhutias of Darjeeling are due to intestinal parasites: the threadworm, tape-worm, round worm, and the common hook-worm. By the kindness of Major S. A. McSwiney, I.M.S., all the porters were admitted for one night, or longer when necessary, to the Victoria Hospital at Darjeeling. They were there examined by Dr. Yen Singh and the medical officers of the expedition, and cleared of parasites; 34 per cent. were found to be infected. All porters were vaccinated against small-pox.

We were absolved from the more onerous work in connexion with the food of the expedition by the kindness of Mr. S. S. Zilva, D.Sc., of the Lister Institute, who inspected the ration lists from the point of view of calorific value and vitamin content. An almost recent tragedy drew the attention of explorers to the danger of scurvy after a comparatively short period of subsistence on preserved foods; but the careful examination of the reports of other expeditions and of troops in time of war have given rise to the opinion that much minor ill-health may result from a shortage of vitamin C far short of that required to produce scurvy. The high camp ration of a former Everest expedition was scorbutic. The present expedition is well supplied with highly concentrated lemon juice, a yeast preparation, and extract of halibut's liver.

Still more recent than the realisation of the importance of vitamins is the knowledge of that of palatability. *De gustibus non disputandum* is an aphorism which may apply with truth to explorers at sea-level as in the arctic and antarctic regions. It emphatically does not apply at great altitudes, where a man can be persuaded to eat only what appeals to him. If the kitchen of a good London restaurant could be transferred to the North Col, the summit of Everest would be appreciably nearer. We feel that on this occasion we might from this point of view have watched with greater care the choice of foodstuffs. It is undoubtedly a mistake to hand over to a big firm the supply of food for an important expedition. Every item should be separately chosen and the personal likes of every climber most carefully considered. But one of us was already abroad, and the time of the other was fully occupied with still more important matters.

The medical equipment of an expedition which will for many months be out of touch with instrument makers and chemists must always be difficult. The expense of transport severely limits the number and size of packages. But every expedition must be prepared for accidents and major operations as well as the ordinary minor ailments of a long march under varied and smetimes arduous conditions.

On the march across Tibet the medical officers are apt to be unpopular with the kitchen staff. The Sherpa or Bhutia cook sees little sense in the cleansing of cooking utensils and dishcloths. Himself apparently immune to any but the most virulent forms of dysentery, he looks upon the boiling of water or milk as an insane and troublesome whim of the doctors. He will politely accept any order given to him, but only unceasing vigilance and frequent visits in rubber-soled shoes at unexpected times will ensure his coöperation. Dirty plates can so easily be cleaned with a little saliva or the tail of the shirt. Boiled water cannot after a while be distinguished from water gently warmed. Provided the amount of the sediment is small, it is less trouble to put water directly into the lower part of the filter; the sahibs are so impatient when they are thirsty.

One of the worst menaces to health on the march across Tibet is dust. In every camping place the afternoon wind blows into mouth, nose, eyes, water, food, and cooking pots a fine yellow dust, which would be irritating and dangerous if it contained only the pure sand of the mountains. Coming from the soil of age-old camps in which sanitation is unknown it is doubly dangerous. There have on the present expedition been many cases of pharyngitis and conjunctivitis, though happily the trouble has been chiefly among the porters.

Apart from very minor ailments, the European members of the expedition have arrived at base camp having suffered no severe illness of any kind. And the problems of climbing the mountain can now be faced with a team physically fit.

Camp I., 18,200 feet above sea-level, April 28th.

Dr. A. C. MAGIAN writes to say the statements in the lay press about him and his work were made without his consent and contained inaccuracies.

A MEDICAL HISTORY OF LIVERPOOL.—Dr. H. R. Bickerton writes: A medical history of Liverpool, based upon material collected by Mr. Thomas H. Bickerton, is being compiled at the request of the family by Miss M. McKisack, lecturer in history in the University of Liverpool. If any of your readers have letters, papers, pictures, or personal recollections which they would care to submit for the purpose of this history, will they kindly send them to me at 88, Rodney-street, Liverpool? All communications will be immediately acknowledged, and manuscripts will be returned with the least possible delay.